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DOCUMENT

document title/ titre du document

HERSCHEL MOC PROJECT CLOSURE PLAN

prepared by/*préparé par* M.Schmidt

reference/*réference* PT-HMOC-OPS-PL-6221-HSO-OAH
issue/*édition* 1
revision/*révision* Draft
date of issue/*date d'édition* 24/06/2013
status/*état* 0
Document type/*type de document* PL
Distribution/*distribution*

European Space Agency
Agence spatiale européenne

A P P R O V A L

Title *Titre*	Herschel MOC Project Closure Plan	issue *issue*	1	revision *revision*	0

author *auteur*	M.Schmidt 2013.06.24 17:38:45 +02'00'	date *date*	24.06.2013
approved by *approuvé par*	A.Rudolph	date *date*	

C H A N G E L O G

reason for change /*raison du changement*	issue/*issue*	revision/*revision*	date/*date*

C H A N G E R E C O R D

Issue: 1 Revision: 0

reason for change/*raison du changement*	page(s)/*page(s)*	paragraph(s)/*paragraph(s)*

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1 INTRODUCTION

This document describes the actions to be taken by the MOC at the termination of the Herschel Mission. The document covers both the technical part of the mission closure (Space Element and Ground Segment) and also the documentation process. The technical part encompasses the making safe of, and disposal of the satellite and ground segment. The documentation part identifies the most important records to be stored, the storage location, length of storage for future reference, and the responsible for the custody of the records. This is to ensure that the most important records associated with a project continue to be available for future reference.

In general the satellite will be made safe with the transmitters switched off. The mission data will be backed-up to storable media, and the ground segment hardware switched off and uninstalled. Documentation and backed up media will be put into Archive for a minimum of 10 years before the archived data could be destroyed.

2 SCOPE

This document deals with the post-operational phase of the Herschel mission. This phase, also referred to as the Run-Down Phase, addresses all aspects of mission closure defined in the Mission Implementation Requirements Document (MIRD) [**AD1**] requirement MASS-080 given below:

MASS-080	The MOC is involved in the "Run-down" phase (a sub-phase lasting about 3 months of the complete Post-operational phase). During this phase the following activities will take place: - derivation of final spacecraft calibration accuracy data (e.g. pointing); - final spacecraft-related processing; - archiving of software and documentation; - transfer of knowledge between MOC and HSC-ICCs, and between MOC and PSO-DPCs as required; - disposal of MOC dedicated facilities;. - ICC@MOC and IW@MOC equipment returned to the PI-teams; - establishment of final Cost-at-Completion; - prepare a summary of all the lessons learned: "Post Mission Evaluation Report"	H/P

In addition to the formal post-operations activities, the document presents the space segment activities that will decommission the spacecraft and ensure that the final orbit remains distinct from the Earth-Moon system for as long as possible with the available fuel (delta-V) on-board.

3 ABBREVIATIONS

AR	Anomaly Report
ARTS	Anomaly Report Tracking System
CCB	Configuration Control Board
CR	Change Request
DDS	Data Disposition System
DMS	Document Management System
DRL	Documents Requirements List
DTCP	Daily Telecommunication Period
ESOC	European Space Operations Centre
EoHe	End Of Helium (HeII)
FCT	Flight Control Team
FD	Flight Dynamics
FDIR	Failure Detection, Isolation and Recovery
FIR	Financial Information Report
GSM	Ground Segment Manager
HSC	Herschel Science Centre
IW@MOC	Instrument Workstation at MOC
MOC	Mission Operations Centre
OD	Operational Day
PAR	Product Assurance Representative
QMS	Quality Management System
SVT	System Validation Test

4 DOCUMENTATION

4.1 Applicable Documents

AD1	Herschel-Planck Mission Implementation Requirements Document [MIRD]	SCI-PT-8818
AD2	Herschel -Planck Mission Implementation Plan [MIP]	PT-MGT-MIP-1001-OPS-OA
AD3	Herschel Planck MOC Configuration Management Plan	PT-CMOC-MGT-PL-1203-OPS-CQ
AD4	Herschel Planck MOC Product Assurance Plan	PT-CMOC-MGT-PL-1202-OPS-CQ
AD5	Herschel Flight Operations Plan	PT-HMOC-OPS-FOP-6001-OPS-OAH
AD6	ESOC – QMS Work Instruction for Project Closure	QMS-EIMO-CTRP-WI-7411-OPS
AD7	ESOC – QMS Procedure for Identification Control and Disposal of Quality Records	QMS-ESC-CNFD-PR-5200-OPS
AD8	Mission Operations	QMS-EIMO-GSEG-PR-1700-OPS
AD9	Proposal Preparation and Contract Management for External Customers	QMS-EIMO-CTRP-PR-7400-OPS
AD10	Internal Work Agreements	QMS-EIMO-CTRP-PR-7430-OPS
AD11	Project Control and Management	QMS-EIMO-CTRP-PR-7410-OPS
AD12	Control of Procurement	QMS-OPS-CTRP-PR-7100-OPS
AD13	OPS Document Management	QMS-OPS-CNFD-PR-5300-OPS
AD14	Identification, Control and Disposal of Quality Records	QMS-OPS-CNFD-PR-5200-OPS
AD15	Herschel and Planck Final Trajectory For Mission Decommissioning	PT-CMOC-OPS-TN-6620-HSO-OAH
AD16	Herschel and Planck Jacobi-Forbidden Return Disposal Strategy	MAS Working Paper #579, Issue 1, 22/05/2012
AD17	Herschel Run Down Plan	PT-HMOC-OPS-PL-6227-OPS-OAH; Draft 0.1

4.2 Reference Documents

The following documents, though not formally part of this document, amplify or clarify its content:

RD1	ECSS Glossary of Terms	ECSS-P-001A RD2
RD2	ESA Archiving Manual	TOS-PMC/1998/dms/ib, dated April 1998
RD3	Herschel-Planck Mission Control System, Interface Control Document, Data Disposition System	TERMA/SPD/63/HPMCS/TS/ICD/DDS, Issue 1.9, 04/03/2010
RD4	Planck Project Closure Plan	PT-PMOC-OPS-PL-6222-OPS-OAP; issue 1.0 draft; 16/11/2012

5 OVERVIEW

5.1 Space Segment

The end of the operational life of the Herschel spacecraft is determined by the running down of the cooling liquid (HeII), keeping the focal plane and relevant instrument parts at cryogenic temperatures for infrared observation. The end of HeII (EoHe) is predicted to occur late March/beginning of April 2013.

Upon HeII depletion the warm-up of the cryogenic systems will happen within a short period (i.e. within hours). At this point in time the official end of life will be declared and the run-down phase will start.
The run-down phase will comprise mainly two elements: a series of technology experiment will be carried out (on the still fully functional Service Module [SVM] and with warm instruments) and finally the spacecraft will be disposed.

For the spacecraft disposal the option “Non-return disposal into the solar system” as per **AD15** and **AD16** will be adopted.
Although there are no formal requirements for spacecraft decommissioning, it is considered appropriate to apply the core remit of the ESA Code of Conduct defined in the Charter for Requirements for Space Debris Mitigation for ESA Projects. Furthermore the spacecraft will be made as safe as the design allows. Therefore the following activities will be performed on the spacecraft as part of final operations:

- The “main” manoeuvre will be conducted, bringing the spacecraft onto it’s final trajectory
- Switch off the Transmitters and prevent any on-board action re-asserting Tx LCLs (via dedicated CDMS patch)
- a “draining” manoeuvre will be conducted to empty the tanks from the remaining Hydrazin

The spacecraft attitude will not be controlled after the final de-orbit and decommissioning activities.

The predictions for the occurrence of EoHe and the time of the window for the final disposal manoeuvre allow relatively firm scheduling of the major activities, i.e. the uncertainties in the EoHe prediction won’t impact the selection of the date of the final manoeuvre campaign and there are sufficient margins to allow for all foreseen technology tests.

5.2 Ground Segment

5.2.1 GROUND STATION CONFIGURATION

Maintenance of the ground station configuration for the Herschel spacecraft can be suspended from the day of the last contact period, which would be the day of the “draining” manoeuvre. This stands for the prime and back-up 35m stations (NNO, CEB), the stand-by 35m station (MLG), as well as the emergency 15m station (KRU) and other 15m stations that had maintained Herschel configuration (MSP, PER). The conclusion of spacecraft contact activities will be communicated to the ground station scheduling responsibles at MOC in advance of the conclusion of spacecraft operations.
Note that operations of the Herschel spacecraft was always tied to its twin, the Planck spacecraft. Planck operations will continue beyond the end-of-life of Herschel. Any activity to decommission Herschel operations in the ground segment shall have no negative effect on Planck operations.

5.2.2 MISSION CONTROL SYSTEM

The Mission Control Systems at MOC will be switched off and de-installed following the conclusion of spacecraft operations. The Long-Term Archive (hltaa with hsdsa and hltab with hsdsb) will be left connected to the network for a minimum of **1 month** following the final spacecraft contact period to ensure that the instrument teams have sufficient time to verify that the data are complete. Therefore termination of the access to external users to the hsdsa and/or hsdsb is foreseen latest for the end July 2013.

The two Long-Term Archive machine (hltaa and hltab) will be configured in combination with the short term archives and the secure data servers (in order to limit the amount of effort for reconfiguration) as retrieval system for MOC internal purposes (compilation of Mission Report) for a prolonged period. This machines shall then be powered off on the 31st October 2013.

For on-line data, the MUST system at MOC shall provide access to data for a period **until end-2014**. This is possible, because the MUST system – as a common system for Herschel and Planck – will be maintained by the Planck team after end-of-life of Herschel. Maintenance of the MUST system will follow the normal hardware maintenance schemes present in ESOC. A catastrophic hardware failure though may result in the loss of the MUST system, since the SCOS long term archive won't be available for re-population after October 2013.

The components of the Herschel Mission Control System are detailed in the table below. Most of the hardware becomes immediately redundant with the conclusion of spacecraft operations. As defined above some servers (hltaa,hltab, hmca, hmcb, hsdsa and hsdsb) will continue to provide DDS functionality until end July 2013 and thereafter will be available for MOC internal activities - configured as Scos-in-a-box for off-line storage – until end October 2013. The timeline for hardware decommissioning following the end of the Herschel spacecraft operations is detailed in the in Annex 1. Systems used commonly by Herschel and Planck will be maintained as determined by the Planck Project Closure Plan [**RD 4**].

The Herschel emergency back-up mini-system, located in Cebreros, will be decommissioned following the end of Herschel operations. Since Planck operations continue after the end of the Herschel mission, the common NCTRS for the mini-systems is to be maintained for the need of Planck operations.

Host	LOCATION	PRODUCT NAME	Use	Item Short Code	Inv. No.
HLTAD		DL580G3.IS	Herschel LTA server Devlan	SERV-10251	32317
HMCA		DL580G3.IS	Herschel STA server A-chain	SERV-10255	32321
HMCB		DL580G3.IS	Herschel STA server B-chain	SERV-10163	32129
HMCD		DL580G3.IS	Herschel STA server Devlan	SERV-10250	32325
HPNCTRA	D09 - V 26	V240.SS	NCTRS chain A	SERV-10320	N/A
HPNCTRB	H002 - G 04	V240.SS	NCTRS B chain	SERV-10319	N/A
HPNCTRD	D09 - V 25	V120.SS	NCTRS chain Devlan	SERV-10060	N/A
HPSDSD		DL580G3.IS	Secure Data Server Devlan	SERV-10119	32039
PC042	E31	HPDC7600.IS	HPDCR OPS X-Term	DESK-10445	N/A
HPOBSM	TBD	GX260.IS	OBSM	DESK-CI40618	30753
HPNDIULITE	E31	PE600SC.IS	Simulator-Nctrs gateway	SERV-CI40686	30969

Host	LOCATION	PRODUCT NAME	Use	Item Short Code	Inv. No.
HMCC		DL580G3.IS	Herschel STA server C-chain	SERV-10257	32319
HPDEVCL2	A001	B2500.SS	spare MCS client	DESK-CI21109	31292
HSDSA		DL580G3.IS	Secure Data Server A-chain	SERV-10252	32324
HSDSB		DL580G3.IS	Secure Data Server B-chain	SERV-10327	32475
HLCTFCEB	TBC	XW6400.IS	minisystem MCS client	DESK-10562	N/A
HPNCTRC	H002 - G 04	V120.SS	NCTRS C	SERV-10059	N/A
HPNCTRCEB	TBC	V120.SS	NCTRS mini system	SERV-10131	N/A
HPORAC1	TBC	B1500.SS	Oratos mini system (FD)	DESK-10017	31382
WS043	E31	XW6400.IS	DCR MCS ws	DESK-10559	N/A
WS044	E31	XW6400.IS	DCR MCS ws	DESK-10560	N/A
WS046	E31	XW6400.IS	DCR MCS ws (MPS)	DESK-10558	N/A
WS047	E31	XW6400.IS	HPMCS client chain B	DESK-10561	N/A
WS048	E31	XW6400.IS	DCR MCS ws (MPS)	DESK-10522	N/A
HPDEVCL4	A001	XW6400.IS	Herschel-Planck validation workstation	DESK-10610	N/A
WS049	E31	XW6400.IS	HPMCS Client C-Chain	DESK-10609	N/A
HLTAB		DL580G3.IS	Herschel LTA server B-chain	SERV-10120	32035
HLTAA		DL580G3.IS	Herschel LTA server B-chain	SERV-10249	32318

Table 1: Herschel Mission Control System Hardware Inventory

Host	LOCATION	PRODUCT NAME	Use	Item Short Code	Inv. No.
HMCA		DL580G3.IS	Herschel STA server A-chain	SERV-10255	32321
HMCB		DL580G3.IS	Herschel STA server B-chain	SERV-10163	32129
HSDSA		DL580G3.IS	Secure Data Server A-chain	SERV-10252	32324
HSDSB		DL580G3.IS	Secure Data Server B-chain	SERV-10327	32475
HLTAB		DL580G3.IS	Herschel LTA server B-chain	SERV-10120	32035
HLTAA		DL580G3.IS	Herschel LTA server B-chain	SERV-10249	32318

Table 2: Herschel Hardware Inventory to be maintained until 31st October under Herschelk CaC

Some of the hardware items in Table 1 are required to support the Planck mission which will continue beyond the end-of-life of the Herschel Mission. As of end-of-life of Herschel, Planck will maintain the hardware under the Planck CaC. The specific hardware is given in table 2 below.

Host	Location	Product	Use	Short Code	Inv. #
HPNCTRA	ESOC-DENEB (D09 - BA 44)	V240.SS	NCTRS A-Chain	SERV-10320	N/A
HPNCTRB	ESOC-HALLEY (H002 - G 07)	V240.SS	NCTRS B-Chain	SERV-10319	N/A
HPNCTRC	ESOC-HALLEY (H002 - G 07)	V120.SS	NCTRS C-Chain	SERV-10059	N/A
HPNCTRCEB	CEBREROS (MER)	V120.SS	H/P Mini-System NCTRS	SERV-10131	N/A

HLTAD	ESOC-DENEB (D09 - BA 42)	DL580G3.IS	DEVLAN LTA (SWS)	SERV-10251	32317
HMCD	ESOC-DENEB (D09 - BA 42)	DL580G3.IS	DEVLAN STA (SWS)	SERV-10250	32325
HMCC	ESOC-HALLEY (H002 - G 06)	DL580G3.IS	INTEL SYSTEM	SERV-10257	32319
HPORAC1	CEBREROS (MER)	B1500.SS	SUN SYSTEM	DESK-10017	31382
HPDEVCL4	A01	XW6400.IS	INTEL SYSTEM	DESK-10610	N/A
pc040	ESOC (E31)	GX280-DVDR.IS	HPDCR SIM X-Term	DESK-10061	31435
ws046	ESOC (E31)	XW6400.IS	MPS/MCS Client w/s [B-Chain]	DESK-10558	N/A
ws048	ESOC (E31)	XW6400.IS	MCS Client w/s [C-Chain]	DESK-10522	N/A

Table 3: Herschel/Planck Common Hardware Inventory to be maintained beyond Herschel End-Of-Life under Planck CaC

5.2.3 MISSION UTILITY & SUPPORT TOOLS (MUST)

The MUST server at MOC shall remain operational **until end-2014**, but will be maintained under the Planck CaC after End-Of-Life of the Herschel mission. This includes the provision of external access, also from the Herschel community (Herschel Science Centre; Herschel ICCs).

The specific hardware is given in the table below.

Host	LOCATION	PRODUCT NAME	Use	Item Short Code	Inv. No.
HPMUSTR	ESOC-HALLEY (H002 - G 07)	DL380G6.IS	MUST Server	SERV-10522	N/A

Table 4: Hardware details for MUST server

5.2.4 SIMULATORS

The 4 Herschel/Planck simulator machines and 2 interface PCs are notionally listed under 'HERSCHEL OPS' project and are costed under the Herschel CaC.

Host	LOCATION	PRODUCT NAME	Use	Item Short Code	Inv. No.
SIMI132	ESOC-DENEB (D09 - BA 44)	DL580G4.IS	H/P Simulator	SERV-10414	32531
SIMI133	ESOC-HALLEY (H002 - G 04)	DL580G4.IS	H/P Simulator	SERV-10415	32532
SIMI134	D09 - BA 41	DL580G4.IS	Herschell Planck simulators	SERV-10272	32360
SIMI135	D09 - BA 41	DL580G4.IS	Herschell Planck simulators	SERV-10273	32361
PC040	E31	GX280-DVDR.IS	HPDCR SIM X-Term	DESK-10061	N/A
PC041	ESOC (E31)	GX280-DVDR.IS	HPDCR SIM X-Term	DESK-10075	31449

Table 5: simulator hardware

Some of the hardware items in Table 4 are required to support the Planck mission which will continue beyond the end-of-life of the Herschel Mission. As of end-of-life of Herschel, Planck will

maintain the hardware under the Planck CaC. The hardware relevant for this scenario are given in the table below.

Host	LOCATION	PRODUCT NAME	Use	Item Short Code	Inv. No.
SIMI132	ESOC-DENEB (D09 - BA 44)	DL580G4.IS	H/P Simulator	SERV-10414	32531
SIMI133	ESOC-HALLEY (H002 - G 04)	DL580G4.IS	H/P Simulator	SERV-10415	32532
PC041	ESOC (E31)	GX280-DVDR.IS	HPDCR SIM X-Term	DESK-10075	31449

Table 6: Planck simulator hardware relevant for post-Herschel phase

5.2.5 IW@MOC WORKSTATIONS

The Herschel instrument teams have hardware at MOC to monitor telemetry during the passes. The hardware supports the teams if and when they need to be present at MOC for special operations or being operated remotely (from the ICC) during instrument recovery. The hardware is located in the portacabin (PK1 ground-floor), also called the PISA (PI Support Area)

After conclusion of Herschel operations the IW@MOC hardware will be shipped to the respective instrument team sites. The printer (NCP612) is commonly used by Herschel and Planck will remain in the PISA until Planck operations termination. The shipment addresses for the instrument teams are given in Annex 2.

Name	Host	Use	PRODUCT	IP	Monitor #
PSCOS	**PACS_1**	**S2K W/S**	**PC/Linux**	**195.74.167.225**	**2**
PAN	**PACS_2**	**Analysis W/S**	**PC/Linux**	**195.74.167.226**	**2**
PDS	**PACS_3**	**Data Server**	**PC/Linux**	**195.74.167.227**	**1**
SSCOS	**SPIRE_1**	**S2K W/S**	**PC/Linux**	**195.74.167.238**	**2**
SAN	**SPIRE_2**	**Analysis W/S**	**PC/Linux**	**195.74.167.239**	**2**
SDS	**SPIRE_3**	**Data Server**	**PC/Linux**	**195.74.167.240**	**1**
HSCOS	**HIFI_1**	**S2K W/S**	**PC/Linux**	**195.74.167.246**	**2**
HAN	**HIFI_2**	**Analysis W/S**	**PC/Linux**	**195.74.167.247**	**2**
NCP612	**NCP612**	**Colour printer**	**Colour printer**	**PRNT-10007**	**-**

Table 7: Herschel IW@MOC hardware

5.2.6 RAW DATA MEDIA DVD DATA BACK-UP

Off-line full data sets on Raw Data Media (RDMs) are produced by the DDS. The data on the RDM is complete with data format descriptions so that each RDM is stand-alone and does not require any external resource to use the data. The chosen medium is DVD, with 2 identical DVDs produced for each OD (with duration around 24 hours).

Data on the RDMs is packaged using the CCSDS Panel 2 Standard Formatted Data Unit (SFDU) Concept. This provides a method of packaging together and logically labelling (identifying) all the files on the RDM. Each disk contains all data available in the Long-Term Archive, including the data

from all data streams and also all the auxiliary data produced by MOC. As outlined above, each disk contains a copy of all the data descriptions required to understand the data on the disk.

The availability of a completely duplicated data set (on DVD) allows the possibility to store one data set off-site. It is therefore anticipated that one set of DVDs will be transferred to HSC for storage as part of post-operations run-down.

As per requirement, the RDM storage period in MOC is for a minimum of 10 years commencing with final space segment activities.

5.3 Documentation

After the end of the Herschel mission all relevant mission documentation will be stored in a suitable repository for a period not less than 10 years. Most documentation is available in *Prisma* or the *DMS*. All reports generated from test campaigns, as well as all periodic reporting and one-off reporting that has been assigned a document reference from the project controller will be available from the *DMS*.

Physical documentation, like Log Books, Pass Sheets and Special Operations Instructions will be collected by the SOM and held in his office for an initial period of 6 to 12 month. After that it will be transferred to storage and held there for a period not less than 10 years.

The table in Annex 3 presents an overview of the Herschel-relevant documentation set.

6 MISSION TERMINATION

6.1 Mission Funding

The nominal mission termination activities are driven by the occurrence of End of HeII and the window for the final disposal manoeuvre. This determines the point in time at which funding has ceased and therefore all operations stop.

The End of HeII occurred on the 29th April 2013. The disposal manoeuvre was executed on the 13th May 2013, followed by the final draining manoeuvre and passivation of the Herschel spacecraft on the 17th June 2013.
The funding of the majority of the manpower allocated to the Herschel project will stop towards the end of June 2013. Some (minimal) resources will be maintained until end of October 2013 in order to compile the final Mission Report and to ensure proper handover of lists of operational documentation to the HSC.

6.2 Spacecraft Failure

In the case of a major anomaly that leads to the termination of the scientific mission, the Mission Manager and H/OPS-O in consultation with SPC representatives shall agree on the go ahead for mission termination once all possible recovery strategies have been exhausted. Depending upon the failure case, part or all of the nominal procedure for space segment decommissioning will be performed. The execution of clean spacecraft disposal from SEL2 will be exercised if at all possible.

7 PROJECT CLOSURE PROCESS

7.1 Billing and Payments

Final billing and payments shall be completed prior to project closure. This includes payments from external customers (AD9), ESA Customers (AD10), suppliers via contracts and Purchase Orders (AD12). Following this, the final Financial Information Report (FIR) will be generated by the Project Controller to provide the financial actuals for the whole mission (MOC part).

7.2 Space segment

7.2.1 PREPARATION

The conclusion of space segment activities incorporates the decommissioning and disposal of the Herschel spacecraft. The decommissioning is intended to make the spacecraft as safe as the design allows by removing as much fuel as possible and ensuring that the spacecraft does not radiate as an interference source for other missions.

The time from the 29th April (final HeII exhaust) to the 17th June 2013 (final draining manoeuvre) was used to conduct technology experiments with the still fully functional service module and with some instruments (in a warm configuration) as outlined in **AD17**.

Effort was extended to properly develop and validate the operations required to execute the decommissioning activity, including a System Validation Test (SVT) campaign on the Avionics Model (AVM) conducted in the second half of February 2013. All operations constituting spacecraft decommissioning were be formulated in Flight Operations Procedures.

The disposal scenario for the Herschel spacecraft is the so-called Non-Return Disposal in the Solar System. This has been endorsed by HSO-O and SRE-O and will be performed at the conclusion of the (scientific) mission. The development of the specific manoeuvre (disposal) strategy was under the responsibility of Flight Dynamics (HSO-GFE). The co-ordination between the Flight Control Team (HSO-OAH) and Flight Dynamics for the proper implementation of the disposal activity was under the responsibility of the Herschel SOM.

7.2.2 EXECUTION

On April 29th 2013 the running-out from HeII ended the operational scientific life of the Herschel observatory. The actual process – when the film of the superfluid HeII in its cryogenic tank breaks until the temperatures within the cryogenic system (comprising the cold interface to the instrument detectors) rise above operational limits – took no longer than a couple of hours.

This point in time determined the end of science observations and the begin of the technology experiments leading to the final manoeuver campaign for spacecraft disposal.

The scope and volume of the technology experiments is provided in **AD17**.

Final passivation after the draining delta-V was achieved by triggering an CDSM software alarm which – due to the modification of the relevant FDIR functions – switched off the transponders.

7.3 Ground Segment

7.3.1 PREPARATION

The operational components of the ground segment, including the Mission Control System, shall remain fully operational until conclusion of Planck operations. That said, it is possible to expedite the subsequent decommissioning of the various elements by ensuring that preparatory activities are undertaken. This could include the following:

(i) Prepare hltaa and hltab as Scos-on-a-box;
(ii) Ensure MOC MUST archive is gap-free and up-to-date;
(iii) Ensure that the DVD Production is up-to-date;

7.3.2 EXECUTION

The execution of ground segment decommissioning will commence once Herschel operations are concluded. The formal go-ahead for this activity will come from the Herschel SOM.

The elements defined for decommissioning as part of the conclusion of the Herschel mission are given under Section 5.2. The schedule for ground segment decommissioning activities is presented in Annex-1. This schedule is defined around the end of spacecraft operations, which specifically relates to the day of the final ground station contact with the spacecraft.

The documentation to be archived as part of post-operations run-down is given in Section 5.3.

8 LESSON LEARNED REVIEW & CLOSURE REPORTING

An internal MOC Lessons Learned Review was held on 2nd November 2012. The full archive of Herschel and Planck lessons learned are available under ARTS ("Herchel-Planck Lessons Learned" (HP_LL)).

Once the mission operations are concluded an **End of Mission** Report will be written. This document will bring together the space and ground segment summaries that were presented in the Herschel monthly reports to present a coherent overview of the mission. The End of Mission report will cover the following areas:

- Important mission phases and operational campaigns;
- Platform sub-systems status including anomalies;
- Payload status including anomalies;
- Ground Segment operations review including problem summary.

It is noted that the Herschel/Planck In-Orbit Performance Review (IOPR) sessions were an extremely useful forum for very direct information exchange with the industry consortium. The sessions were held in June 2010 (one year after launch) and in May 2011 (two years after launch), as well as the less formal IOPR#3 held as part of an industry support contract review meeting in September 2012. With this in mind it is considered worthwhile to anticipate a post-mission review with industry focused on the End of Mission report. Indeed, industry will support the review of this report and may be requested to support developments of specific elements therein.

9 CONCLUSION

The activities presented in this document constitute the full set of activities required to carry out Herschel Project Closure. At the conclusion of the execution and implementation of all items in this document, the ground and space segment elements will be safely configured, requiring no further operations support.

Upon demonstration of completion of the project closure activities stated within this Project Closure Plan, the Project Manager, through the direction of the SOM shall declare the Project closed.

ANNEX 1: HERSCHEL MISSION CLOSURE SCHEDULE

The Herschel mission closure schedule is defined around the end of spacecraft operations. This is defined as the period of final ground station contact. The de-orbit epoch is set for May 2013. The final contact period will be around the second week of May 2013.

Date Reference	Action
28th June 2013	**Remove superfluous MCS hardware to stock #1**
	HPOBSM OBSM
	HPNDIULITE (E31) Simulator-Nctrs gateway
	HPDEVCL2 (A001) spare MCS client
	HPNCTRD (Deneb) NCTRS chain Devlan
	HPSDSD Secure Data Server Devlan
	ws043 (E31) MCS Client w/s DCR
	ws044 (E31) MCS Client w/s DCR
	ws047 (E31) MCS Client w/s DCR (C-chain and MPS)
	ws049 (E31) MCS Client w/s DCR (C-chain and MPS)
	Decommission Herschel Simulators
	SIMI134 (DENEB) H/P Simulator
	SIMI135 (HALLEY) H/P Simulator
	PC042 (E31) HPDCR SIM X-Term
	Decommission Herschel Mini-System
	HLCTFCEB (Cebreros) Herschel Mini-System MCS w/s
	Consolidate data storage on RDM (DVD)
	Set-1 to be stored at MOC
	Set-2 to be stored at ESAC (HSC)
	Initiate shipment of IW@MOC hardware
	Reconfigure HLTA, HLTAB, HMCA, HMCB, HSDSA and HSDSB as Scos-in-a-box
31st October 2013	**Remove superfluous MCS hardware to stock #2**
	HLTAA (DENEB) Herschel LTA server (A-Chain)
	HLTAB (HALLEY) Herschel LTA server (B-Chain)
	HMCA (DENEB) Herschel STA server (A-Chain)
	HMCB (HALLEY) Herschel STA server (B-Chain)
	HSDSA (DENEB) Herschel SDS (A-Chain)
	HSDSB (HALLEY) SDS (B-Chain)
+10 years	**End of formal RDM (DVD) storage period**
	End of formal Documentation storage period

ANNEX 2: IW@MOC SHIPMENT DETAILS

The IW@MOC hardware shall be returned to the instrument sites at the end of mission operations.

HIFI	
HIFI_1	
HIFI_2	
PACS	
PACS_1	
PACS_2	
PACS_3	
SPIRE	
SPIRE_1	
SPIRE_2	
SPIRE_3	

ANNEX 3: DOCUMENTATION

The documentation listed below will be stored in a suitable repository for a period not less than 10 years. Most documentation is available in PRISMA or the DMS.
Some documents are protected by non-disclosure agreements with industry. Documents flagged as such shall be disclosed to a limited number of persons to be nominated within the HSC and formal non-disclosure agreement needs to be requested.

ANNEX 3.1 MOC Mission Management Documentation

PT-CMOC-MGT-MIP-1001-OPS-OAH	PT-MGT-MIP-1001-TOS-OGH	Mission Implementation Plan
PT-CMOC-MGT-MA-1002-OPS-GMA	PT-MA-RP-0010-TOS-GA	Herschel Planck Consolidated Report on Mission Analysis
PT-CMOC-MGT-SCH-1003-OPS-PMC		Herschel-Planck Ground Segment Schedule
PT-CMOC-MGT-MX-1004-OPS-OGH		Herschel-Planck MOC Verification Matrix
PT-CMOC-MGT-PL-1005-OPS-CQ		Herschel Planck Documentation Tree
PT-CMOC-MGT-ICD-1101-OPS-OAH	SCI-PT-RS-07360	Herschel Planck Operations Interface Requirements Document
PT-CMOC-MGT-ICD-1102-OPS-OAH	SCI-PT-ICD-07418	Herschel Planck Space / Ground Interface Control Document
PT-CMOC-MGT-ICD-1103-OPS-OAH		
PT-CMOC-MGT-ICD-1104-OPS-xx	as needed	
PT-CMOC-MGT-PL-1201-OPS-xxx		
PT-CMOC-MGT-PL-1202-OPS-CQ		Herschel Planck MOC Product Assurance Plan
PT-CMOC-MGT-PL-1203-OPS-CQ	HP-MGT-PL-1001-TOS-OGH PT-CMOC-MGT-PL-1203-OPS-CQ	Herschel Planck MOC Configuration Management Plan
PT-CMOC-MGT-PL-1204-OPS-CQ		Herschal Planck MOC Risk Management Plan
PT-CMOC-MGT-PL-1205-OPS-OA	PT-CMOC-LEOP-LF-1205-OPS-OA	Herschel Planck Launch Folder
PT-CMOC-MGT-PL-1206-OPS-OA		Mission Control Team List Launch
PT-CMOC-MGT-PL-1207-OPS-OA	as needed	

PT-CMOC-MGT-LI-1300-OPS-PMC		Herschel Planck Document List
PT-CMOC-MGT-PR-1301-OPS-CQ		Herschel Planck Document Management Procedure
PT-CMOC-MGT-PR-1302-OPS-CQ		Herschel Planck MOC CCB Change Control Procedure
PT-CMOC-MGT-PR-1303-OPS-OAH		Herschel Planck Ground Segment Design Review Procedure
PT-CMOC-MGT-PR-1304-OPS-OAH	PT-MGT-PR-1001-TOS-OGH	HP Ground System Requirements Review Procedure
PT-CMOC-MGT-PR-1305-OPS-OA		HP Ground Segment Implementation Review Procedure
PT-CMOC-MGT-PR-1306-OPS-OA		HP Ground Segment Readiness Review Procedure
PT-CMOC-MGT-PR-1307-OPS-OA		HP Ground Segment Operations Readiness Meeting Procedure
PT-CMOC-MGT-PR-1308-OPS-OA	as needed	
PT-CMOC-MGT-RP-1401-OPS-CQ		FMECA for Herschel Planck MOC
PT-CMOC-MGT-RP-1402-OPS-CQ		Herschel-Planck MOC RAMS Analysis Report
PT-CMOC-MGT-RP-1403-OPS-CQ		
PT-CMOC-MGT-RP-1404-OPS-CQ		HP MOC Configuration Item Data List
PT-CMOC-MGT-RP-1405-OPS-OA		HP: Status Report on Actions and issues from the GSReqR
PT-CMOC-MGT-RP-1406-OPS-GD	PT-MGT-RP-1001-TOS-GD	HP GSDR Panel Report
PT-CMOC-MGT-RP-1407-OPS-OA		HP MOC GSDR Board Report
PT-CMOC-MGT-RP-1408-OPS-OA		HP MOC GSRR Status Report
PT-CMOC-MGT-RP-1409-OPS-OA		HP GSIR P1 Status Report
PT-CMOC-MGT-RP-1410-OPS-OA		HP GSIR P1 Panel Report
PT-CMOC-MGT-RP-1411-OPS-OA		HP GSIR P1 Board Report
PT-HMOC-MGT-RP-1412-OPS-OA	SRE-SA/2008/001/Dc/Jc	HP GSRR Herschel Science Ground Segment Panel Report
PT-CMOC-MGT-RP-1413-OPS-OA		HP GSRR MOC Panel Report
PT-CMOC-MGT-RP-1414-OPS-OA	TEC-I/2008-009/KL	HP GSRR Board Report
PT-CMOC-MGT-RP-1415-OPS-OA		Herschel and Planck LEOP Report
PT-CMOC-MGT-RP-1416-OPS-OA		HP IOCR MOC Status Report
	as needed	
PT-CMOC-MGT-MIR-1501-OPS-PMC	PT-MGT-MIR-0001-TOS-SCC	Herschel Planck Management Information Report #1
PT-CMOC-MGT-MIR-1502-OPS-PMC	PT-MGT-MIR-0002-OPS-PMO	Herschel Planck Management Information Report #2

PT-CMOC-MGT-MIR-1503-OPS-PMC	PT-MGT-MIR-1503-OPS-PMO	Herschel Planck Management Information Report #3
PT-CMOC-MGT-MIR-1504-OPS-PMC		Herschel Planck Management Information Report #4
PT-CMOC-MGT-MIR-1505-OPS-PMC		Herschel Planck Management Information Report #5
PT-CMOC-MGT-MIR-1506-OPS-PMC		Herschel Planck Management Information Report #6
PT-CMOC-MGT-MIR-1507-OPS-PMC		Herschel Planck Management Information Report #7
PT-CMOC-MGT-MIR-1508-OPS-PMC		Herschel Planck Management Information Report #8
PT-CMOC-MGT-MIR-1509-OPS-PMC		Herschel Planck Management Information Report #9
PT-CMOC-MGT-MIR-1510-OPS-PMC		Herschel Planck Management Information Report #10
PT-CMOC-MGT-MIR-1511-OPS-PMC		Herschel Planck Management Information Report #11
PT-CMOC-MGT-MIR-1512-OPS-PMC		Herschel Planck Management Information Report #12
PT-CMOC-MGT-MIR-1513-OPS-PMC		Herschel Planck Management Information Report #13
PT-CMOC-MGT-MIR-1514-OPS-PMC		Herschel Planck Management Information Report #14
PT-CMOC-MGT-MIR-1515-OPS-PMC		Herschel Planck Management Information Report #15
PT-CMOC-MGT-MIR-1516-OPS-PMC		Herschel Planck Management Information Report #16
PT-CMOC-MGT-MIR-1517-OPS-PMC		Herschel Planck Management Information Report #17
PT-CMOC-MGT-MIN-1601-OPS-PMC		Herschel Planck Internal Co-ordination Meeting #1
PT-CMOC-MGT-MIN-1602-OPS-PMC		Herschel Planck Internal Co-ordination Meeting #2
PT-CMOC-MGT-MIN-1603-OPS-PMC		Herschel Planck Internal Co-ordination Meeting #3
PT-CMOC-MGT-MIN-1604-OPS-PMC		Herschel Planck Internal Co-ordination Meeting #4
PT-CMOC-MGT-MIN-1605-OPS-PMC		Herschel Planck Internal Co-ordination Meeting #5
PT-CMOC-MGT-MIN-1606-OPS-PMC		Herschel Planck Internal Co-ordination Meeting #6
PT-CMOC-MGT-MIN-1607-OPS-PMC		Herschel Planck Project Progress Meeting #1
PT-CMOC-MGT-MIN-1608-OPS-PMC		Herschel Planck Project Progress Meeting #2
PT-CMOC-MGT-MIN-1609-OPS-PMC		Herschel Planck Internal Co-ordination Meeting #7
PT-CMOC-MGT-MIN-1610-OPS-PMC		Herschel Planck Project Progress Meeting #3
PT-CMOC-MGT-MIN-1611-OPS-PMC		Herschel Planck Project Progress Meeting #4
PT-CMOC-MGT-MIN-1612-OPS-PMC		Herschel Planck Project Progress Meeting #5
PT-CMOC-MGT-MIN-1613-OPS-PMC		Herschel Planck Project Progress Meeting #6
PT-CMOC-MGT-MIN-1614-OPS-PMC		Herschel Planck Project Progress Meeting #7
PT-CMOC-MGT-MIN-1615-OPS-PMC		Herschel Planck Project Progress Meeting #8
PT-CMOC-MGT-MIN-1616-OPS-PMC		Herschel Planck Project Progress Meeting #9

PT-CMOC-MGT-MIN-1617-OPS-PMC		Herschel Planck Project Progress Meeting #10
PT-CMOC-MGT-MIN-1618-OPS-PMC		Herschel Planck Project Progress Meeting #11
PT-CMOC-MGT-MIN-1619-OPS-PMC		Herschel Planck Project Progress Meeting #12
PT-CMOC-MGT-MIN-1620-OPS-PMC		Herschel Planck Project Progress Meeting #13
PT-CMOC-MGT-MIN-1621-OPS-PMC		Herschel Planck Operations Readiness Meeting (ORR)
PT-PMOC-MGT-MIN-1622-OPS-OAP		Planck In Orbit Performance Review (IOPR) Minutes
PT-HMOC-MGT-MIN-1623-OPS-OAH		Herschel In Orbit Performance Review (IOPR) Minutes
PT-PMOC-MGT-MIN-1624-HSO-OAP		Planck In Orbit Performance Review#2 (IOPR-2) Minutes
	as needed	
PT-CMOC-MGT-MIN-1650-OPS-ONI	PT-MCS-MIN-1001-OPS-ONI	HP MCS Performances - MoM
PT-HMOC-MGT-MIN-1651-OPS-OAH	PT-CMOC-MGT-MIN-1651-OPS-OA	HERSCHEL SVT-0 Test Readiness Review - MoM
PT-PMOC-MGT-MIN-1652-OPS-OAP		PLANCK SVT-0 Test Readiness Review - MoM
PT-CMOC-MGT-MIN-1653-OPS-CQ		HP MOC Operational Validaton Campaign Briefing Minutes
PT-CMOC-MGT-FIR-1701-OPS-PMC	PT-MGT-FIR-0001-TOS-SCC	Herschel Planck Financial Information Report #1
PT-CMOC-MGT-FIR-1702-OPS-PMC	PT-MGT-FIR-0002-TOS-SCC	Herschel Planck Financial Information Report #2
PT-CMOC-MGT-FIR-1703-OPS-PMC		Herschel Planck Financial Information Report #3
PT-CMOC-MGT-FIR-1704-OPS-PMC		Herschel Planck Financial Information Report #4
PT-CMOC-MGT-FIR-1705-OPS-PMC		Herschel Planck Financial Information Report #5
PT-CMOC-MGT-FIR-1706-OPS-PMC		Herschel Planck Financial Information Report #6
PT-CMOC-MGT-FIR-1707-OPS-PMC		Herschel Planck Financial Information Report #7
PT-CMOC-MGT-FIR-1708-OPS-		Herschel Planck Financial Information Report #8

PMC PT-CMOC-MGT-FIR-1709-OPS-PMC		Herschel Planck Financial Information Report #9
PT-CMOC-MGT-TN-1801-OPS-CQ		ARTS-Elog Interface Set up for HP
PT-CMOC-MGT-TN-1802-OPS-CQ		Report on ARTS-Elog Interface HP
PT-CMOC-MGT-TN-1803-OPS-CQ		ARTS-ElogDMZ Interface Set up for HP
PT-PMOC-MGT-TN-1804-OPS-GFA		MAO Working Paper No.508: Launch Window for Fast Transfer of Planck
PT-CMOC-MGT-TN-1805-OPS-CQ		PA Support for HP LEOP
PT-CMOC-MGT-TN-1806-OPS-xx	as needed	
PT-CMOC-MGT-MEM-1901-OPS-OA		

ANNEX 3.2 MOC Flight Dynamics Documentation

PT-CMOC-FD-RC-2001-OPS-GFT	Herschel Planck Flight Dynamics Support Requirements Compilation
PT-CMOC-FD-IA-2002-OPS-GFT	Implementation Analysis Herschel Planck Flight Dynamics System
PT-CMOC-FD-SAD-2003-OPS-GFT	HERSCHEL/PLANCK FDS-MOC Internal Interface System Test Plan
PT-CMOC-FD-SCD-2004-OPS-GFx	
PT-HMOC-FD-MOD-2005-OPS-GFT	Herschel Mission Operations Document
PT-PMOC-FD-MOD-2013-OPS-GFT	Planck Mission Operations Document
PT-CMOC-FD-SAD-2006-OPS-GFT	HERSCHEL/PLANCK FDS-SGS Interface System Test Plan

PT-CMOC-FD-SAD-2007-OPS-GFT		HERSCHEL/PLANCK FDS Single Test Plan
PT-CMOC-FD-SAD-2008-OPS-GFT		HERSCHEL/PLANCK FDS Subsystem Test Plan
PT-CMOC-FD-SAD-2009-OPS-GFT		HERSCHEL/PLANCK FDS System Test Plan
PT-CMOC-FD-SAD-2010-OPS-GFT		HERSCHEL/PLANCK FDS Availability Test Plan
PT-HMOC-FD-SAD-2011-OPS-GFT		HERSCHEL FDS-SGS Interface System Test Report
PT-PMOC-FD-SAD-2012-OPS-GFT		PLANCK FDS-SGS Interface System Test Report
PT-PMOC-FD-SAD-2014-OPS-GFI		HERSCHEL/PLANCK Tracking Campaign Report
PT-CMOC-FD-QAAIL-2050-OPS-GFT		HERSCHEL/PLANCK Quality assurance Action Item List
PT-CMOC-FD-ICD-2101-OPS-GFI		Herschel Planck Orbit Data & Access Software ICD
PT-CMOC-FD-ICD-2102-OPS-GFI		Herschel Planck Satellite Propogation Delay Data ICD
PT-CMOC-FD-ICD-2103-OPS-GFI		Herschel Planck Orbit Events File ICD
PT-CMOC-FD-ICD-2104-OPS-GFT		Flight Dynamics Planning Skeleton File ICD
PT-CMOC-FD-ICD-2105-OPS-GFT		Herschel-Planck FDS-MCS Task Parameter File ICD
PT-PMOC-FD-ICD-2106-OPS-GFT		Planck Task Parameter File ICD
PT-HMOC-FD-ICD-2107-OPS-GFT		Herschel EPOS/APF ICD
PT-PMOC-FD-ICD-2108-OPS-GFT		Planck Augmented Preprogrammed Pointing List / Attitude Parameter File ICD
PT-HMOC-FD-ICD-2109-OPS-GFT		Herschel Attitude History File ICD
PT-PMOC-FD-ICD-2110-OPS-GFT	PT-PMOC-FD-ICD-2110-OPS-GFT	Planck Attitude History File ICD
PT-HMOC-FD-ICD-2111-OPS-GFT		Herschel Spacecraft Instrument Alignment History File ICD
PT-PMOC-FD-ICD-2112-OPS-GFT	PT-FDOS-DPC-ICD-0003-TOS-GFT	Planck Spacecraft Instrument Alignment History File ICD
PT-CMOC-FD-ICD-2113-OPS-GFT		Herschel Planck Attitude Utilities ICD
PT-CMOC-FD-ICD-2114-OPS-GFT		Herschel Planck Attitude Constraint Checker ICD
PT-PMOC-FD-ICD-2115-OPS-GFT		Planck Attitude Constraint Checker ICD
PT-HMOC-FD-ICD-2116-OPS-GFT		Herschel Slew Time and Path Predictor ICD
PT-PMOC-FD-ICD-2117-OPS-GFT		Planck Slew Time and Path Predictor ICD
PT-CMOC-FD-ICD-2118-OPS-GFT	PT-PMOC-FD-ICD-2118-OPS-GFT	Planck Raw Attitude History File ICD

PT-CMOC-FD-SSD-2201-OPS-GFT		Herschel-Planck FDDB to OFDDB import
PT-CMOC-FD-SSD-2202-OPS-GFT		Herschel-Planck OFDDB access and maintenance
PT-CMOC-FD-SSD-2203-OPS-GFT		Herschel-Planck TM access
PT-CMOC-FD-SSD-2204-OPS-GFT		Herschel-Planck ADC Support-Functions (incl. RCS calibrations and related TPFs)
PT-CMOC-FD-SSD-2205-OPS-GFT		Herschel-Planck ACMS Calibrations+TPF generation
PT-HMOC-FD-SSD-2206-OPS-GFT		Herschel Calibration Manoeuvre Planning
PT-CMOC-FD-SSD-2207-OPS-GFT		Herschel-Planck Display Tools, Utilities and Reporting Tools
PT-CMOC-FD-SSD-2208-OPS-GFT		HP RCS Modelling and Callibration
PT-CMOC-FD-SSD-2209-OPS-GFT		XMM/INTEGRAL/Herschel Software Specification Document - Environmental Torque and Force Model
PT-CMOC-FD-SSD-2210-OPS-GFT	Other documents at AC level	
PT-HMOC-FD-SSD-2301-OPS-GFT		Herschel Attitude Determination and Attitude History File Generation
PT-PMOC-FD-SSD-2302-OPS-GFT		Planck Attitude Determination and Attitude History File Generation
PT-PMOC-FD-SSD-2303-OPS-GFT	Other documents at AD level	
PT-CMOC-FD-SSD-2401-OPS-GFI		Herschel/Planck MANTRA FD Interplanetary Manoeuvre Optimization SSD
	Other documents at OC level	
PT-CMOC-FD-SSD-2501-OPS-GFI		Herschel Planck FD Orbit Determination SSD
	Other documents at OD level	

PT-CMOC-FD-SSD-2601-OPS-GFT	Herschel-Planck Mission Planning History File
PT-CMOC-FD-SSD-2602-OPS-GFT	Herschel-Planck PSF Generation
PT-CMOC-FD-SSD-2603-OPS-GFT	Herschel-Planck Task Parameter File Generation
PT-HMOC-FD-SSD-2604-OPS-GFT	Herschel Reaction Wheel Profile Planning FDS SSD
PT-HMOC-FD-SSD-2605-OPS-GFT	Hershel EPOS Generation
PT-PMOC-FD-SSD-2606-OPS-GFT	Planck Preprogrammed Pointing List, APF
PT-CMOC-FD-SSD-2607-OPS-GFT	HP MPS Error Handling and Logging
PT-CMOC-FD-SSD-2608-OPS-GFT	HP TPF/APF Formatting Library
PT-CMOC-FD-SSD-2609-OPS-GFT	HP File Assignment Library
PT-CMOC-FD-SSD-2610-OPS-GFT	HP MPS Man-Machine Interface
PT-HMOC-FD-SSD-2611-OPS-GFT	Herschel Slew Time Predictor SSD
PT-PMOC-FD-SSD-2612-OPS-GFT	Planck Slew Time Predictor SSD
PT-PMOC-FD-SSD-2613-OPS-GFT	Planck Attitude Conversion
PT-PMOC-FD-SSD-2614-OPS-GFT	Planck Attitude Verification

Other documents at MP level

PT-CMOC-FD-TN-2701-OPS-GFT	FDDB Population & Priority List
PT-CMOC-FD-TN-2702-OPS-GFT	HP Transfer Orbit Optimisation
PT-CMOC-FD-TN-2703-OPS-GFT	Herschel Planck Autonomous Star Tracker Night Sky Test Data Processing

PT-PMOC-FD-TN-2704-OPS-GFI	PT-PMOC-FD-TN-2704-OPS-GFI	HERSCHEL+PLANCK Development of Flight Dynamics Applications using MATLAB
PT-PMOC-FD-TN-2705-OPS-GFT		Planck Pointing Reference Handling
PT-PMOC-FD-TN-2706-OPS-GFT	PT-CMOC-FD-TN-2706-OPS-GFT	Star Tracker Alignment Calibration from Ground
PT-PMOC-FD-TN-2707-OPS-GFI	PT-FDOS-MP-TN-1001-TOS-GFT	Planck Planned Pointing List Processing (Assigned by G. Gienger, TBW by GFI)
PT-CMOC-FD-TN-2708-OPS-GFT		FDDB Status Review
PT-HMOC-FD-TN-2709-OPS-GFM		FD Herschel Venting Modelling
PT-CMOC-FD-TN-2710-OPS-GFI		NNO Slaving from Perth for 1st Acquisition (Accuracy Analysis)
PT-CMOC-FD-TN-2711-OPS-GFT	PT-PMOC-FD-TN-2711-OPS-GFT	Planck Acceleration and Attitude Profile: Algorithm to Derive Spacecraft Acceleration due to Spin Axis Re-Orientation
PT-CMOC-FD-TN-2712-OPS-GFT		Herschel/Planck launcher contingency case
PT-PMOC-FD-TN-2713-OPS-GFT		Planck Small Gap Recovery Feasibility under Orbit Control Mode
PT-CMOC-FD-TN-2714-OPS-GFT		Herschel-Planck Thruster Performance Models for Flight Dynamics
PT-HMOC-FD-TN-2715-OPS-GFT		Herschel reaction wheel stiction zone avoidance
PT-CMOC-FD-TN-2716-OPS-GFA	PT-PMOC-MGT-TN-2716-OPS-GFA	WP 536 HP Mission Analysis: From Collision Risk after Separation from the Launcher to Safe Mode Effects on the Operational Orbit
PT-HMOC-FD-TN-2717-OPS-GFA		WP 537 HP Mission Analysis: On Orbit Contingencies at Launch and in Early Orbit Phase
PT-HMOC-FD-TN-2718-OPS-GFT		Test of new Herschel RW control concept with realistic pointing sequences
PT-PMOC-FD-TN-2719-OPS-GFI		Planck: Analysis of strategies for transfer to 10 degree operational orbit
PT-HMOC-FD-TN-2720-OPS-GFI		Herschel: Manoeuvre performance report - Transfer and orbit control phases
PT-PMOC-FD-TN-2721-OPS-GFI		Planck: Manoeuvre performance report - Transfer and orbit control phases
PT-PMOC-FD-TN-2722-OPS-GFE		Calibration of the Fibre Optic Gyro package with respect to the Star Tracker
PT-PMOC-FD-TN-2723-OPS-GFE		Planck Attitude History File Estimation Algorithm Improvements Study
PT-CMOC-FD-TN-2724-OPS-GFE		Herschel/Planck Star Tracker Focal Length Assessment Using Raw Star Telemetry Data
	Other documents for TN or WP	

PT-CMOC-FD-MOM-2801-OPS-GFT		MoM “Herschel planetary constraints”
PT-CMOC-FD-MOM-2802-OPS-GFI		Interface from manoeuvre optimisation to command generation: Orbit manoeuvres
PT-CMOC-FD-MOM-2803-OPS-GFT		Herschel-Planck FDS-MCS Task Parameter File ICD – Review Meeting
PT-CMOC-FD-MOM-2804-OPS-GFT	PT-CMOC-FD-MIN-2804-OPS-GFT	Minutes of Herschel Planck Event Report TMHF Meeting
PT-HMOC-FD-MOM-2805-OPS-GFT	PT-HMOC-FD-MIN-2805-OPS-GFT	MoM “Herschel reaction wheel planning”
PT-CMOC-FD-MOM-2806-OPS-GFT		MoM "H-P acceleration profile"
PT-CMOC-FD-MOM-2807-OPS-GFT		MoM "H-P internal attitude history file"
PT-CMOC-FD-MOM-2808-OPS-GFT		MoM Mission planning/ Manoeuvre optimisation I/Fs
PT-CMOC-FD-MOM-2809-OPS-GFT		H-SVT-1 preparation meeting 2007-09-10
PT-HMOC-FD-MOM-2810-OPS-GFT	PT-CMOC-FD-MIN-2810-OPS-GFT	MoM “H-SVT-1 preparation #3” 2007/09/26
PT-HMOC-FD-MOM-2811-OPS-GFT	PT-CMOC-FD-MIN-2811-OPS-GFT	MoM “H-SVT-1 preparation #4” 2007/10/15
PT-HMOC-FD-MOM-2812-OPS-GFT	PT-CMOC-FD-MIN-2812-OPS-GFT	MoM “H-SVT-1 preparation #5” 2007/11/02
PT-HMOC-FD-MOM-2813-OPS-GFT	PT-CMOC-FD-MIN-2813-OPS-GFT	MoM “H-SVT-1 preparation #6” 2007/11/16
PT-HMOC-FD-MOM-2814-OPS-GFT	PT-CMOC-FD-MIN-2814-OPS-GFT	MoM “H-SVT-1 preparation #7” 2007/12/08
PT-HMOC-FD-MOM-2815-OPS-GFT	PT-CMOC-FD-MIN-2815-OPS-GFT	MoM “H-SVT-1 preparation #8” 2008/14/01
PT-PMOC-FD-MOM-2816-OPS-GFT	PT-CMOC-FD-MIN-2816-OPS-GFT	PLANCK: Minutes of Meeting OCM strategy
PT-HMOC-FD-MOM-2817-OPS-GFT	PT-CMOC-FD-MIN-2817-OPS-GFT	MoM “H-SVT-1 preparation #9” 2008/02/01
PT-CMOC-FD-MOM-2818-OPS-GFI		MoM H/P FD internal interface 2008/03/13
PT-CMOC-FD-MOM-2819-		MoM H/P FD internal interface 2008/03/17 (Planck)

OPS-GFI		
PT-CMOC-FD-MOM-2820-OPS-GFT		MoM H/P internal interface action review 29/04/2008
PT-CMOC-FD-MOM-2821-OPS-GFT		MoM HP FD Init briefing 2008/07/15
PT-CMOC-FD-MOM-2822-OPS-GFI		MoM on LEOP issues between FD and SOMs (21/07/2008)
PT-HMOC-FD-MOM-2823-OPS-GFI	PT-HMOC-FD-MIN-2823-OPS-GFI	MoM Herschel: Parasitic delta-Vs 28.11.2008
PT-CMOC-FD-MOM-2824-OPS-GFM		MoM Herschel Planck Migration Issues 2008/12/05
PT-CMOC-FD-MOM-2825-OPS-GFM		MoM HP Mission Qualification Status ArianeSpace 2008/11/25
PT-CMOC-FD-MOM-2826-OPS-GFT		MoM HP FD Status briefing 2008/08/12
PT-CMOC-FD-MOM-2827-OPS-GFI		MoM HP FD status
PT-HMOC-FD-MOM-2828-OPS-GFI	PT-HMOC-FD-MIN-2828-OPS-GFI	MoM Herschel attitude/acceleration interface

ANNEX 3.3 MOC Mission Data System Documentation

PT-CMOC-MCS-SSD-3001-OPS-OAH	PT-MCS-SSD-1001-TOS-OGH	HP MCS System Specification Document
PT-CMOC-MCS-SRS-3002-OPS-GDS	PT-MCS-SRD-1001-TOS-GDS	Herschel-Planck Mission Control System Software Requirement Specifications
PT-CMOC-MCS-SAD-3003-OPS-GDS	TERMA/SPD/63/HPMCS/DDF/SAD/SYS	Herschel Planck MCS SAD / System Level Architecture
PT-CMOC-MCS-DJF-3004-OPS-GDS		
PT-CMOC-MCS-PR-3005-OPS-GDS		
PT-CMOC-MCS-SOW-		

3005-OPS-GDS		
PT-CMOC-MCS-SOW-3006-OPS-GDS		HPMCS D4 Delivery Development
PT-CMOC-MCS-PR-3007-OPS-GDS		HPMCS Software Support Procedure
	Any documents for High Level	
PT-CMOC-MDS-ICD-3101-OPS-GDS		HPMCS Science Ground Segment Real-Time Telemetry ICD
PT-CMOC-MDS-ICD-3102-OPS-GDS	TERMA/SPD/63/HPMCS/TS/ICD/TCO	Time Correlation
PT-CMOC-MDS-ICD-3103-OPS-GDS		Derived Parameter Updates
PT-CMOC-MDS-ICD-3104-OPS-GDS		S/C & Instrument Database Updates
PT-CMOC-MDS-ICD-3105-OPS-GDS		Instrument OBS Interface
PT-CMOC-MDS-ICD-3106-OPS-GDS		Instruments Derived Parameters Definition
PT-CMOC-MDS-ICD-3107-OPS-GDS	TERMA/SPD/63/HPMCS/TS/ICD/FTS	HERSCHEL /PLANCK File Transfer System ICD
PT-CMOC-MDS-ICD-3108-OPS-GDS	TERMA/SPD/63/HPMCS/TS/ICD/DDS	HPMCS Science Ground Segment DDS interface
PT-CMOC-MCS-ICD-3109-OPS-GDS	TERMA/SPD/63/HPMCS/TS/ICD/TDRS	HPMCS Science Ground Segment TDRS Interface
PT-CMOC-MCS-ICD-3110-OPS-GDS		Raw Hard Medium Archive
PT-CMOC-MCS-ICD-3111-OPS-GDS	TERMA/SPD/63/HPMCS/TS/ICD/MPS	Herschel Planck MPS ICD
PT-CMOC-MCS-ICD-3112-OPS-GDS		Herschel Planck OBCP SDE to HPMCS ICD
PT-CMOC-MCS-ICD-3113-OPS-GDS	TERMA/SPD/63/HPMCS/TS/ICD/MIB	Herschel Planck MIB Import ICD
PT-CMOC-MCS-ICD-3114-OPS-GDS	TERMA/SPD/63/HPMCS/ICD/TRPL	HP MCS Telemetry Replayer ICD
	Any documents for ICD	
PT-CMOC-MCS-RP-3201-OPS-GDS		?
PT-CMOC-MCS-RP-3202-OPS-GDS		?

PT-CMOC-MCS-RP-3203-OPS-GDS		?
PT-CMOC-MCS-RP-3204-OPS-GDS		?
PT-CMOC-MCS-SBR-3205-OPS-GDS	TERMA/SPD/63/HPMCS/DJF/SBR	HPMCS Software Budget Report
PT-CMOC-MCS-RP-3206-OPS-GDS		?
PT-CMOC-MCS-RP-3207-OPS-GDS		?
PT-CMOC-MCS-RP-3208-OPS-GDS	PT-CMOC-MCS-RP-3208-OPS-GDS	Herschel Planck MCS PDR Board Report
PT-CMOC-MCS-RP-3209-OPS-GDS	PT-ESC-MCS-RP-1001-OPS-GDS	Herschel-Planck MCS - Preliminary Deign Review Panel Report
PT-CMOC-MCS-RP-3210-OPS-GDS		Mission Control System SRS Review Board Report
	Any documents for RP	
PT-CMOC-MCS-SAD-3301-OPS-GDS	TERMA/SPD/63/HPMCS/DDF/SAD/DADS	Herschel-Planck MCS - SAD/DADS
PT-CMOC-MCS-SAD-3302-OPS-GDS	TERMA/SPD/63/HPMCS/SAD/NIS	Herschel-Planck MCS SAD / Network Interface System
PT-CMOC-MCS-SAD-3303-OPS-GDS	TERMA/SPD/63/HPMCS/SAD/PAS	Herschel-Planck MCS SAD / Performance Analysis
PT-CMOC-MCS-SAD-3304-OPS-GDS	TERMA/SPD/63/HPMCS/DDF/SAD/TCS	Herschel-Planck MCS SAD / TeleCommanding System
PT-CMOC-MCS-SAD-3305-OPS-GDS	TERMA/SPD/63/HPMCS/DDF/SAD/TMS	Herschel Planck MCS SAD / Telemetry Monitoring System
PT-CMOC-MCS-SAD-3306-OPS-GDS	TERMA/SPD/63/HPMCS/SAD/DBS	Herschel-Planck MCS SAD / Database System
PT-CMOC-MCS-SAD-3307-OPS-GDS		
	Any documents for SubSys /MPS SAD	
PT-CMOC-MCS-TP-3401-OPS-GDS	TERMA/SPD/63/HPMCS/DJF/SVVP/FAT	Herschel/Planck MCS SVVP- Factory AT
PT-CMOC-MCS-TP-3402-OPS-GDS	PT-MCS-VVP-1001-OPS-GDS	HPMCS SVVP/ST Database System (DBS)

PT-CMOC-MCS-TP-3403-OPS-GDS	PT-MCS-VVP-1002-OPS-GDS	HPMCS SVVT/ST DADS
PT-CMOC-MCS-TP-3404-OPS-GDS	PT-MCS-VVP-1003-OPS-GDS	HPMCS SVVT/ST Behaviour Limit Checker System
PT-CMOC-MCS-TP-3405-OPS-GDS	PT-MCS-VVP-1004-OPS-GDS	HPMCS SVVP/ST On-Board Event History Dispaly (OBEH)
PT-CMOC-MCS-TP-3406-OPS-GDS	PT-MCS-VVP-1005-OPS-GDS	HPMCS SVVP/ST Performance Analysis System (PAS)
PT-CMOC-MCS-TP-3407-OPS-GDS	PT-MCS-VVP-1006-OPS-GDS	HPMCS SVVP/ST SPPG
PT-CMOC-MCS-TP-3408-OPS-GDS	PT-MCS-VVP-1007-OPS-GDS	HPMCS SVVP/ST Synthetic Parameter Processing
PT-CMOC-MCS-TP-3409-OPS-GDS	PT-MCS-VVP-1008-OPS-GDS	HPMCS SVVP/ST System (SYS)
PT-CMOC-MCS-TP-3410-OPS-GDS	PT-MCS-VVP-1009-OPS-GDS	HPMCS SVVP/ST Time Correlation
PT-CMOC-MCS-TP-3411-OPS-GDS	PT-MCS-VVP-1010-OPS-GDS	HPMCS SVVP/ST TCS
PT-CMOC-MCS-TP-3412-OPS-GDS	PT-MCS-VVP-1011-OPS-GDS	HPMCS SVVP/ST TM Packet History Display (TMPH)
PT-CMOC-MCS-TP-3413-OPS-GDS	PT-MCS-VVP-1012-OPS-GDS	HPMCS SVVP/ST Telemetry Monitoring System
PT-CMOC-MCS-TP-3414-OPS-GDS	PT-MCS-VVP-1013-OPS-GDS	HPMCS SVVP/ST TM Spacon
PT-CMOC-MCS-TP-3415-OPS-GDS	PT-MCS-VVP-1014-OPS-GDS	HPMCS SVVP/ST TM Packetiser
PT-CMOC-MCS-TP-3416-OPS-GDS	PT-MCS-VVP-1015-OPS-GDS	HPMCS SVVP/UT On-Board Eevent and Action Model and Display
PT-CMOC-MCS-TP-3417-OPS-GDS	PT-MCS-VVP-1016-OPS-GDS	HPMCS SVVP/UT On-Board Parameter Monitoring Model and Display
PT-CMOC-MCS-TP-3418-OPS-GDS	TERMA/SPD/63/HPMCS/DJF/SVVP/UT 6110+6120	HPMCS SVVP/UT Stack Time Shifting and TC Padding
PT-CMOC-MCS-TP-3419-OPS-GDS	PT-MCS-TP-1002-OPS-GDS	Herschel Planck MCS Performance Measurement Test Plan
PT-CMOC-MCS-TP-3420-OPS-GDS		HP LCTF Load Performance Test Plan
	Any documents for TP	
PT-CMOC-MCS-TR-3501-OPS-GDS		To be reused

PT-CMOC-MCS-TR-3502-OPS-GDS	PT-MCS-TR-1002-OPS-GDS	Herschel Planck MCS Load Performance Measurement Test Report (session 1 & 2)
PT-CMOC-MCS-TR-3503-OPS-GDS	PT-MCS-TR-1002-OPS-GDS	HPMCS D1 Provisional Acceptance report
PT-CMOC-MCS-TR-3504-OPS-GDS	PT-CMOC-MCS-TR-3504-OPS-GDS	HPMCS D2 Provisional Acceptance report
PT-CMOC-MCS-TR-3505-OPS-GDS	PT-CMOC-MCS-TR-3505-OPS-GDS	HPMCS D3 Final Acceptance Report
PT-CMOC-MCS-TR-3506-OPS-GDS	PT-MCS-RP-1002-OPS-GDS	HPMCS D4-M01 Acceptance Test Report
PT-CMOC-MCS-TR-3507-OPS-GDS		HP LCTF Load Performance Test Report
	Any documents for TR	
PT-CMOC-OBSM-SOW-3601-OPS-GDS	PT-MCS-SOW-1002-OPS-GDS	Herschel/Planck MCS OBSM Dev Statement of Work
PT-CMOC-OBSM-SAD-3601-OPS-GDS	HPOBS-SAD-013-5	Herschel Planck MCS - Software Architectural Design - OBSM System
PT-CMOC-OBSM-SUM-3601-OPS-GDS	HP-ESC-SUM-019-1100	Herschel Planck MCS - Software User Manual - On- Board Software Maintenance
	Any documents for OBSM High Level	
PT-CMOC-OBSM-TN-3701-OPS-OFM	PT-CMOC-OBSM-TN-3701-OPS-OFM	OBSM Stack Naming Convention (S/S with ICD-3750)
PT-CMOC-OBSM-TN-3702-OPS-OFM	PT-CMOC-OBSM-TN-3702-OPS-OFM	Herschel Planck OBSM System Development Technical Note
PT-CMOC-OBSM-TN-3703-OPS-OFM	PT-CMOC-OBSM-TN-3703-OPS-OFM	Herschel Planck OBSM Checksum definition
	Any documents for OBSM TN	
PT-CMOC-OBSM-TR-3721-OPS-GDS	PT-ESC-MCS-TR-1001-OPS-GDS	Herschel Planck OBSM D1 Software Validation test Report
PT-CMOC-OBSM-TR-3722-OPS-GDS	PT-MCS-TR-1002-OPS-GDS	Herschel/Planck OBSM D2 Acceptance Test Report
PT-CMOC-OBSM-TR-3723-OPS-GDS	PT-MCS-TR-1003-OPS-GDS	Herschel/Planck OBSM D3 Acceptance Test Report
PT-CMOC-OBSM-TR-3724-OPS-GDS		Herschel/Planck OBSM final Acceptance Test Certificate

PT-CMOC-OBSM-TR-3725-OPS-GDS	PT-MCS-RP-1003-OPS-GDS	Herschel/Planck OBSM final Acceptance Test Report
PT-CMOC-OBSM-TR-3726-OPS-GDS	PT-MCS-RP-1004-OPS-GDS	Final Acceptance Certificate of HPMCS OBSM delivery D2- Addendum
PT-CMOC-OBSM-TR-3727-OPS-GDS	PT-MCS-OBSM-ATR-1001-OPS-GDS	Herschel/Planck OBSM D3 - WO1 Acceptance Test Report
PT-CMOC-OBSM-TR-3728-OPS-GDS		HPMCS OBSM D3-W02 Acceptance Test Report
PT-CMOC-OBSM-TR-3729-OPS-GDS		HPMCS OBSM D3-W03 Acceptance Test Report
PT-HMOC-OBSM-TR-3730-OPS-OAH		Herschel Instrument OBSM Validation Test Report
	Any documents for OBSM TR	
PT-CMOC-OBSM-ICD-3750-OPS-OFM	PT-CMOC-OBSM-ICD-3750-OPS-OFM	H/P OBSM File ICD (Replaces OBSM TN 3701)
	Any documents for OBSM ICD	
PT-CMOC-OBSM-??-38xx-OPS-xxx		
PT-CMOC-MCS-TN-3901-OPS-GDS		H/P connectivity requirements
PT-CMOC-MCS-TN-3902-OPS-GDS		HPMCS Redundancy and Back-up Concept Specifications

ANNEX 3.4 MOC Simulator Documentation

PT-CMOC-SIM-SRS-4201-OPS-GDS	PT-SST-SRS-1001-TOS-GDS	Herschel Planck Simulator SRS
PT-CMOC-SIM-SAD-4202-OPS-GDS	zip file of all 8 volumes	Herschel Planck Simulator Software Architectural D
PT-CMOC-SIM-SVVPR-4203-OPS-GDS	zip file - PT-CMOC-SIM-SVP-4203-OPS-GDS	Herschel Planck Simulator Software Verification and (System)
PT-CMOC-SIM-SBR-4204-OPS-GDS		Herschel Planck Simulator Software Budget Report (
PT-CMOC-SIM-??-4205-OPS-GD?		To be reused
PT-CMOC-SIM-RP-4206-OPS-GDS		Herschel Planck Simulator PDR Board Report

PT-CMOC-SIM-RP-4207-OPS-GDS	PT-MOC-SIM-SOW-1001-TOS-GDS	Herschel Planck Simulator SOW
	PT-MOC-SIM-SOW-1002-OPS-GDS	Herschel Planck Simulator SOW for Maintenance Ex
PT-CMOC-SIM-RP-4208-OPS-GDS		Herschel Planck Simulator SAD Board Report
PT-CMOC-SIM-RP-4209-OPS-GDS		Herschel Planck Simulator Development Status Sum
PT-CMOC-SIM-??-4210-OPS-GDS		To be reused
PT-CMOC-SIM-??-4211-OPS-GDS		To be reused
PT-CMOC-SIM-??-4212-OPS-GDS		To be reused
PT-CMOC-SIM-VVP-4213-OPS-GDS		Herschel Planck Simulator Software Verification and System Test
PT-CMOC-SIM-TP-4301-OPS-GDS	zip file of all 8 volumes	Herschel-Planck Simulator UTP Vol 0 to Vol 8
PT-CMOC-SIM-TP-4302-OPS-GDS	zip file of all 8 volumes	Herschel-Planck Simulator ITP Vol 0 to Vol 8
PT-CMOC-SIM-TP-4303-OPS-GDS	PT-CMOC-SIM-SAD-4213-OPS-GDS	Herschel-Planck Simulator SVVP/System Plan
PT-CMOC-SIM-PL-4304-OPS-ONF		Herschel-Planck Simulations Plan
PT-CMOC-SIM-??-4305-OPS-GDx	as needed	
PT-CMOC-SIM-SUM-4400-OPS-GDS	zip file Volume 1 and Volume 2	Herschel-Planck Simulator Software User Manual Vol. 1 & 2
PT-CMOC-SIM-SRN-4500-OPS-GDS LINUX		Herschel-Planck Simulator- Software Release Note - Linux
PT-CMOC-SIM-SRN-4500-OPS-GDS Windows		Herschel-Planck Simulator- Software Release Note - Windows
PT-CMOC-SIM-STD-4501-OPS-GDS	PT-CMOC-SIM-SRN-4501-OPS-GDS	Herschel-Planck Simulator Software Transfer Document

ANNEX 3.5 MOC Ground Facilities Documentation

PT-CMOC-GF-RS-5001-OPS-ONV	PT-CMOC-GF-RS-5001-OPS-ONV	Herschel Planck Station and Facilities Implementatio
		Document (SFIRD)
PT-CMOC-GF-PL-5002-OPS-ONF		Can be reused. Sims plan put under Sim documents
PT-CMOC-GF-PL-5003-OPS-ONF	PT-CMOC-GF-PL-5003-OPS-ONV	Herschel/Planck PI Support Area (PISA) Planning
PT-CMOC-GF-PL-5004-OPS-ONN		Herschel/Planck Stations Plan
FIR-ESC-RS-5420		Herschel/Planck Request for Frequency Assignment
H-P-BD-AI-0005		Herschel Planck Link Budget Report
	Other documents at GF level	
PT-CMOC-PSS-RS-5101-OPS-OGH		Herschel/Planck Portable Satellite Sim User Requ Do
PT-CMOC-PSS-UM-5102-OPS-ONF		
PT-CMOC-PSS-ATP-5103-OPS-ONV	Other documents at PSS level	Herschel/Planck PSS Acceptance Test Plan
PT-CMOC-HW-PL-5201-OPS-ONI	PT-CMOC-HW-PL-5201-OPS-ONI	Herschel Planck Computer Systems Configuration Do
PT-CMOC-HW-TR-5202-OPS-ONI	PT-S2K-TR-1001-OPS-ONI	HP S2K 3.1 Packet Archive System Performance TR
PT-HMOC-HW-PL-5203-OPS-GS		Herschel Mini Control System for Cebreros
PT-PMOC-HW-PL-5204-OPS-GS		Planck Mini Control System for Cebreros
	Other documents at HW level	
PT-CMOC-COM-PL-5301-OPS-ECT		Herschel Planck Ground Communication Plan
PT-CMOC-COM-PL-5302-OPS-ECT		Science Ground Segment Network - Handover Docu
	Other documents at COMMS level	
PT-CMOC-OCC-??-5401-OPS-ONF	Any documents at OCC level	
PT-CMOC-GST-PL-5501-OPS-GSY	PT-CMOC-GF-RS-1002-OPS-GS	Station Upgrade Plan for Herschel Planck
PT-CMOC-GST-NOP-5502-OPS-ONN	PT-CMOC-GST-NOP-5002-OPS-ONN	Herschel & Planck Network Operations Procedure
PT-CMOC-GST-RS-5503-OPS-ONV		
PT-CMOC-GST-PR-5504-OPS-ONV	PT-CMOC-GST-PL-5504-OPS-ONV	Herschel/Planck Kourou, Cebreros and New Nocia R
PT-CMOC-GF-RS-5505-OPS-ONN		
PT-CMOC-GST-RP-5506-OPS-ONN		

PT-CMOC-GST-PR-5507-OPS-ONV	PT-CMOC-GST-PR-5507-TOS-ONV	Herschel/Planck GMSK & SP-L Modulation Test Pro
PT-CMOC-GST-PR-5508-OPS-ONV	PT-CMOC-GST-PR-5508-OPS-ONV	Herschel-Planck RFCT procedure and report
PT-CMOC-GST-PL-5509-OPS-ONV		HP Ground Station Baseband Performance E2E High Plan
PT-CMOC-GST-PR-5510-OPS-ONV	PT-CMOC-GST-TN-5510-OPS-ONV	HP SLE configuration document
PT-CMOC-GST-PL-5511-OPS-ONV		HP Diane Station RF Confidence Test Plan and Repo
PT-CMOC-GST-PR-5512-OPS-ONV		Herschel and Planck End to End DFT vix X-Band Pr
PT-HMOC-GST-RP-5513-OPS-ONV		Herschel end-to-end via X-Band Data Flow Test Resu
PT-PMOC-GST-RP-5514-OPS-ONV		Planck end-to-end via X-Band Data Flow Test Result
PT-CMOC-GST-PR-5515-OPS-ONV		H/P suitcase end-to-end DFT via Kourou groundstati
PT-CMOC-GST-TN-5516-OPS-GS	PT-CMOC-FD-TN-2710-OPS-GFI	New Norcia antenna slaving from Perth for Herschel/
PT-CMOC-GST-RP-5517-OPS-ONV	PT-PMOC-GST-RP-5517-OPS-ONV	H/P suitcase end-to-end X-Band DFT via Kourou gro Results
PT-CMOC-GST-RP-5518-OPS-ONV		Herschel end-to-end via X-Band Data Flow Test resu
PT-CMOC-GST-RP-5519-OPS-ONV		Herschel Planck data load test report
PT-CMOC-GST-RP-5520-OPS-OAP		Planck DTCP Test on KRU

PT-CMOC-GST-NCD-5601-OPS-ONN	DOPS-NNO-OPS-NCD-1001-OPS-ON	Network Configuration Doc New Norcia Ground Station
PT-CMOC-GST-NCD-5602-OPS-ONN	DOPS-CEB-OPS-NCD-1001-OPS-ON	Network Configuration Doc Cebreros Ground Station
PT-CMOC-GST-NCD-5603-OPS-ONN	DOPS-PER-OPS-NCD-1001-OPS-ON	Network Configuration Doc Perth Ground Station
PT-CMOC-GST-NCD-5604-OPS-ONN	DOPS-KRU-OPS-NCD-1001-OPS-ON	Network Configuration Doc Kourou Ground Station
PT-CMOC-GST-NCD-5605-OPS-ONN	DOPS-MSP-OPS-NCD-1001-OPS-ON	Network Configuration Doc Maspalomas Ground Station
	Other documents at GST level take numbers after 56xx	
PT-CMOC-NDI-PL-5701-OPS-ONV		HP NDIU, Acceptance Test Plan
PT-CMOC-NDI-PL-5701-OPS-	PT-CMOC-NDI-ICD-5702-	HP NDIU EGSE Interface Control Document

ONV	OPS-ONV NDIU level take numbers after 5702	
PT-CMOC-NDIL-TN-5710-OPS-GSY	PT-CMOC-NDIL-TN-5710-OPS-GSY	HP NDIUlite (PC), Design Report and User Manual
PT-CMOC-NDIL-??-5711-OPS-??	NDIUlite level take numbers after 5710	
PT-HMOC-NDIL-TN-5720-OPS-GSY	PT-HMOC-NDIL-TN-5720-OPS-GSY	Herschel NDIULite (TMTCS)Design Report & Users Manual
PT-PMOC-NDIL-TN-5721-OPS-GSY	PT-HMOC-NDIL-TN-5721-OPS-GSY NDIU-TMTCS level take numbers after 5720	Planck NDIULite (TMTCS)Design Report & Users Manual
PT-CMOC-NDI-TN-5730-OPS-GSY		HP NDIU (IFMS), Design Report and User Manual
PT-CMOC-NDI-??-5731-OPS-??	NDIU-IFMS level take numbers after 5730	
PT-CMOC-GST-MIN-5801-OPS-ONN		Minutes of HP Stations Plan Review
PT-CMOC-GST-MIN-5802-OPS-GS		NNO antenna slaving from Perth for Herschel/Planck - Meeting 17th October 2008
PT-CMOC-GST-MIN-5803-OPS-ONN		Minutes of HP NNO NCD Review

PT-PMOC-OPS-FOP-6002-OPS-OAP	Planck Flight Operations Plan (FOP)
PT-CMOC-OPS-RP-6003-OPS-OAH	Other documents at OPS level take numbers after 6003

PT-CMOC-OPS-ICD-6101-OPS-OGH	Herschel / Planck Consolidated MOC Interface Control Document List
PT-HMOC-OPS-ICD-6102-OPS-OGH	deleted, now covered by PT-CMOC-OPS-ICD-6101-OPS-OGH
PT-PMOC-OPS-ICD-6103-OPS-OGH	deleted, now covered by PT-CMOC-OPS-ICD-6101-OPS-OGH
PT-PMOC-OPS-ICD-6104-OPS-OGH	deleted, now covered by PT-CMOC-OPS-ICD-6101-OPS-OGH
PT-PMOC-OPS-ICD-6105-OPS-OAH	deleted, now covered by PT-CMOC-OPS-ICD-6101-OPS-OGH
PT-CMOC-OPS-ICD-6106-OPS-OAH	Mission Time Line Summary
PT-PMOC-OPS-ICD-6107-OPS-OAH	Consolidation of Instrument Inputs
PT-PMOC-OPS-ICD-6108-OPS-OAP	Daily telecommunication schedule
PT-PMOC-OPS-ICD-6109-OPS-OAP	Mission Time Line Summary
PT-PMOC-OPS-ICD-6110-OPS-OAP	Instruments Task Parameter File ICD
PT-HMOC-OPS-ICD-6111-OPS-OAH	Planck Small Gap Recovery Request
PT-HMOC-OPS-ICD-6112-OPS-OAH	HFI Task Parameter file (TPF) ICD
PT-HMOC-OPS-ICD-6113-OPS-OAH	LFI Task Parameter file (TPF) ICD
	Sorption Cooler Task Parameter file (TPF) ICD
	HIFI Task Parameter file (TPF) ICD
	PACS Task Parameter file (TPF) ICD
	SPIRE Task Parameter file (TPF) ICD

	as needed
PT-PMOC-OPS-PL-6201-OPS-OAP	PT-PMOC-OPS-PL-6201-OPS-OGH
PT-HMOC-OPS-PL-6202-OPS-OAH	PT-PMOC-OPS-PL-6202-OPS-OGH
PT-PMOC-OPS-PL-6203-OPS-OAP	PT-PMOC-OPS-PL-6203-OPS-OGH
PT-HMOC-OPS-PL-6204-OPS-OAH	
PT-CMOC-OPS-PL-6205-OPS-ONV	
PT-CMOC-OPS-PL-6206-OPS-OAP	
PT-CMOC-OPS-PL-6207-OPS-ONV	
PT-HMOC-OPS-PL-6208-OPS-OAH	
PT-PMOC-OPS-PL-6209-OPS-OAP	
PT-HMOC-OPS-PL-6210-OPS-OAH	
PT-CMOC-OPS-PL-6211-OPS-ONV	

Planck SVT-0 Plan
Herschel SVT-0 Plan
Planck SVT-1 Plan
Herschel SVT-1 Plan
HP SVT Test Overview
Planck SOVT-1 Test Plan
HP MOC Integration and Test Plan
FCT Operations Training Plan (Herschel only?)
Planck SVT-2 Plan
Herschel SVT-2 Plan
Herschel /Planck LIT Plan

PT-CMOC-OPS-PL-6212-OPS-OAH		Herschel SOVT-1 Test Plan
PT-CMOC-OPS-PL-6213-OPS-OA		Herscel-Planck FCT Team Responsibilities
PT-HMOC-OPS-PL-6214-OPS-ONV		Herschel SGS-MOC Validation Tests
PT-PMOC-OPS-PL-6215-OPS-ONV		Planck SGS-MOC Validation Tests
PT-PMOC-OPS-PL-6216-OPS-OAP		Planck SOVT-2 Test Plan
PT-HMOC-OPS-PL-6217-OPS-ONV		Herschel SOVT-2 Test Plan
PT-PMOC-OPS-PL-6218-OPS-OAP		Planck Instrument SVT1 Plan
PT-PMOC-OPS-PL-6219-OPS-OAP		Planck SVT-1 part2 test plan
PT-HMOC-OPS-PL-6220-OPS-OAH		Herschel SVT-1 part2 test plan
PT-HMOC-OPS-PL-6221-OPS-OAH		Herschel MOC Project Closure Plan
PT-PMOC-OPS-PL-6222-OPS-OAP		Planck MOC Project Closure Plan
PT-PMOC-OPS-PL-6223-OPS-OAP	PT-PMOC-OPS-PL-6223-OPS-OAP	Planck SVT-3 test plan
PT-PMOC-OPS-SOW-6224-OPS-OAP	PT-PMOC-INST-SOW-1001-OPS-OAP	SoW Planck Instrument Command Product Generation Application
PT-HMOC-OPS-PL-6225-OPS-OAH		Herschel SVT-3 Test Plan (ACC Software Upload)
PT-CMOC-OPS-SOW-6226-OPS-OA		SOW for Industrial Support during phase E2 and F - Herschel Planck
PT-PMOC-OPS-PL-6227-OPS-OAP	PT-PMOC-OPS-PL-6224-OPS-OAP	Planck SVT-4 Test Plan
PT-PMOC-OPS-PL-6228-OPS-OAP		Planck Instrument Validation Testing for SIM release 4.8.4
PT-PMOC-OPS-PL-6229-OPS-OAP		Planck SVT-5 Test Plan
PT-PMOC-OPS-PL-6230-OPS-OAP		Planck Instrument Validation Testing for SIM release 4.8.5
PT-HMOC-OPS-OM-6231-OPS-OAH		Herschel On-Call SOE Instructions
PT-PMOC-OPS-PL-6232-OPS-OAP		Planck SVT-6 Test Plan
PT-PMOC-OPS-PL-6233-OPS-OAP		Planck SVT-6B Test Plan
PT-PMOC-OPS-PL-6234-HSO-OAP		Planck SVT-6B Part#2 Test Plan
PT-HMOC-OPS-PL-6235-HSO-OAH		Herschel SVT-4 Test Plan
PT-PMOC-OPS-PL-6236-HSO-OAP		Planck SVT-7 Test Plan
PT-PMOC-OPS-PL-6237-HSO-OAP		Planck Training Plan
PT-HMOC-OPS-PL-6227-OPS-OAH		Herschel Run Down Plan
PT-PMOC-OPS-PL-6229-OPS-OAH		Herschel SVT-5 Test Plan
	as needed	
PT-PMOC-OPS-PR-6301-OPS-OAP		Planck Science Ground Segment Operations Interactions Document
PT-CMOC-OPS-PR-6302-OPS-OAH		
PT-CMOC-OPS-PR-6303-OPS-OAH	as needed	

PT-CMOC-OPS-PR-6304-OPS-OAP	Planck NDIU Connection Test
PT-HMOC-OPS-RP-6401-OPS-OAH	Herschel SVT-0 Report
PT-CMOC-OPS-RP-6402-OPS-OAH	Herschel/Planck LIT Report
PT-CMOC-OPS-RP-6403-OPS-OA?	
PT-PMOC-OPS-RP-6404-OPS-OAP	Planck SVT-0 Report
PT-PMOC-OPS-RP-6405-OPS-OAP	Planck RTSI Integration Test Report
PT-PMOC-OPS-RP-6406-OPS-OAP	Planck Instrument Command Chain Validation Test Report
PT-HMOC-OPS-RP-6407-OPS-OAH	Herschel RTSI Integration Test Report
PT-HMOC-OPS-RP-6408-OPS-OAH	Herschel Instrument Command Chain Validation Test Report
PT-PMOC-OPS-RP-6409-OPS-OAP	Planck E2E TM Delivery Validation Test Report
PT-HMOC-OPS-RP-6410-OPS-OAH	Herschel SOVT-1 Test Report
PT-HMOC-OPS-RP-6411-OPS-OAH	Herschel SOVT-2 Test Report
PT-HMOC-OPS-RP-6412-OPS-OAH	Herschel SVT-1 Test Report
PT-HMOC-OPS-RP-6413-OPS-OAH	Herschel SVT-2 Test Report
PT-PMOC-OPS-RP-6414-OPS-OAP	Planck SOVT-1 Test Report
PT-PMOC-OPS-RP-6415-OPS-OAP	Planck SOVT-2 Test Report
PT-PMOC-OPS-RP-6416-OPS-OAP	Planck SVT-1 Part 1 Test Report
PT-PMOC-OPS-RP-6417-OPS-OAP	Planck SVT-2 Test Report
PT-HMOC-OPS-RP-6418-OPS-OAH	Herschel SVT-1 Part2 Test Report
PT-HMOC-OPS-RP-6419-OPS-OAH	Herschel E2E TM Delivery Validation Test Report
PT-PMOC-OPS-RP-6419-OPS-OAP	Planck SVT-1 Part2 Test Report
PT-PMOC-OPS-RP-6420-OPS-OAP	Evaluation Report Planck Instrument Command Product Generation
PT-PMOC-OPS-RP-6421-OPS-OAP	Planck SVT-4 Test Report
PT-PMOC-OPS-RP-6422-OPS-OAP	Planck IOPR Supplemental Report
PT-PMOC-OPS-RP-6423-OPS-OAP	Planck SVT-5 Test Report
PT-PMOC-OPS-RP-6424-OPS-OAP	Planck Linux MPS Validation Test Plan and Report
PT-PMOC-OPS-RP-6425-HSO-OAP	Planck IOPR#2 Supplemental Report 2010-2011
PT-CMOC-OPS-RP-6426-OPS-ECO	HERSCHEL-PLANCK LEOP ICT support
PT-PMOC-OPS-RP-6427-HSO-OAP	Planck SVT-6 Test Report

PT-PMOC-OPS-RP-6428-HSO-OAP		Planck Tilt Angle Effects Investigation
PT-PMOC-OPS-RP-6429-HSO-OAP		Planck SVT-6B Test Report
PT-PMOC-OPS-RP-6430-HSO-OAP		Planck SVT-6B Part#2 Test Report
PT-PMOC-OPS-RP-6431-HSO-OAP		Planck Spin-Up Campaign Test Report
PT-PMOC-OPS-RP-6432-HSO-OAH		HERSCHEL SVT-4 Test Report
PT-CMOC-OPS-RP-6433-HSO-ONC		Herschel-Planck Linx Antivirus Evaluation -Test Report
PT-PMOC-OPS-RP-6434-HSO-OAP		Planck SVT-7 Test Report
	as needed	
PT-CMOC-OPS-RP-6501-OPS-OA?		
PT-CMOC-OPS-RP-6502-OPS-OA?		
PT-CMOC-OPS-RP-6503-OPS-OA?	as needed	
PT-HMOC-OPS-TN-6601-OPS-OGH	PT-HMOC-OPS-TN-6601-OPS-OGH	Herschel Mission Planning Concept
PT-PMOC-OPS-TN-6602-OPS-OGH	PT-PMOC-OPS-TN-6602-OPS-OGH	Planck Mission Planning Concept Document
PT-CMOC-OPS-TN-6603-OPS-OGH	PT-CMOC-OPS-TN-6603-OPS	Packet Store Usage On Herschel/Planck
PT-CMOC-OPS-TN-6604-OPS-OGH	PT-MCS-TN-1001-TOS-OFM	H/P OBT - UTC Time Synchronisation TN
PT-CMOC-OPS-TN-6605-OPS-OGH		Procedure writing guidlines for H/P
PT-CMOC-OPS-TN-6606-OPS-OGH		Ground Station Scheduling Rules
PT-CMOC-OPS-TN-6607-OPS-OAH		Mission Timeline Summary Technical Note
PT-CMOC-OPS-TN-6608-OPS-OA		HP Intended operational usage of sub-schedules
PT-CMOC-OPS-TN-6609-OPS-OA		Database Operations Concept
PT-CMOC-OPS-TN-6610-OPS-OAP		Planck: Consequences for Mission Operations of Revised 1N Thruste
PT-PMOC-OPS-TN-6611-OPS-OAP		Planck IOCR assessment of in-flight DTCP duration and packet store
PT-PMOC-OPS-TN-6612-OPS-OAP		PLANCK FCT ASSESSMENT OF RF-ALWAYS-ON SCENARIO
PT-PMOC-OPS-TN-6613-OPS-OAP		Planck SCS Switch-over FM-2 to FM-1 Report
PT-PMOC-OPS-TN-6614-OPS-OAP		Quick-look report into Planck SCS WR raising, +2K on 24th Jan 201
PT-PMOC-OPS-TN-6615-OPS-OAH		KRU Assessment for Herschel Routine Operation
PT-PMOC-OPS-TN-6616-OPS-OAP		Planck End-of-Mission Spin Up/Down Strategy
PT-PMOC-OPS-TN-6617-OPS-OAP		Planck Spin-Up Outline Document
PT-PMOC-OPS-TN-6618-HSO-OAP		PLANCK, LFI optional uplink unit

PT-CMOC-OPS-TN-6619-HSO-OAH	H/P MCS, handling of operational user scripts
PT-CMOC-OPS-TN-6620-HSO-OAH	Herschel and Planck Final Trajectory For Mission Decommissioning
PT-HMOC-OPS-TN-6621-HSO-GFE	Herschel Lunar Impact Trajectory Analysis
PT-PMOC-OPS-TN-6622-HSO-OAP	Planck End-of-Mission Activities
PT-PMOC-OPS-TN-6623-HSO-OAP	Deployment Case for LFI Report Requesting OBCP

PT-CMOC-OPS-MIN-6701-OPS-OAP	PT-CMOC-OPS-MIN-6701-OPS-OAP	MoM Database inconsistencies 26th June 2007
PT-HMOC-SVT-MIN-6702-OPS-OAH	PT-SVT-MIN-1001-OPS-OAH	MoM + Presentation Herschel SVT-1 Test Readiness Review Meetir
PT-PMOC-OPS-MIN-6703-OPS-OAP	PT-PMOC-OPS-MIN-6703-OPS-OAP	P-SVT-1 TRR#2
PT-HMOC-OPS-MIN-6704-OPS-OAH		H-SVT-1 TRR#2
PT-HMOC-OPS-MIN-6704-OPS-OAH		H-SVT-1 TRR#3
PT-PMOC-OPS-MIN-6705-OPS-OAP		P-SVT-1pt2 TRR
PT-CMOC-OPS-MIN-6706-OPS-OAH		Planck and Herschel SVT-1 Close Out Meeting Minutes
PT-HMOC-OPS-MIN-6707-OPS-OAH		H SVT-1 part 2 Telecon1 MoM
PT-HMOC-OPS-MIN-6708-OPS-OAH		H SVT-1 part 2 Telecon2 MoM
PT-HMOC-OPS-MIN-6709-OPS-OAH		H SVT-1 part 2 TRR MoM
PT-HMOC-OPS-MIN-6710-OPS-OAH		H SVT-1 part 2 Telecon3 MoM
PT-HMOC-OPS-MIN-6711-OPS-OAH		H SVT-1 part 2 Telecon4 MoM
PT-HMOC-OPS-MIN-6712-OPS-OAH		H-SOVT-1 TRR MoM
PT-HMOC-OPS-MIN-6713-OPS-OAP		P-SVT-2 ACMS parameter telecon MoM
PT-HMOC-OPS-MIN-6714-OPS-OAP		P-SVT-2 internal TRR MoM
PT-PMOC-OPS-MIN-6715-OPS-OAP		P-SVT-3 TRR MoM
PT-HMOC-OPS-MIN-6716-OPS-OAH		H-SVT-2 TRR MoM

PT-PMOC-OPS-MIN-6717-OPS-OAP	P-SVT-3 ESOC internal TRR minutes
PT-HMOC-OPS-MIN-6718-OPS-OAH	H-SVT3 Preparation Telecon 06.03.2009 MoM
PT-PMOC-OPS-MIN-6719-OPS-OAP	P-SVT-4 TRR minutes
PT-PMOC-OPS-MIN-6720-OPS-OAP	Planck RF-always-ON review minutes
PT-PMOC-OPS-MIN-6721-OPS-OAP	Herschel-Planck SVF Training Minutes
PT-CMOC-OPS-MIN-6722-OPS-OAP	H-P MUST - Archive Discussion Meeting
PT-PMOC-OPS-MIN-6723-OPS-OAP	Planck SCS Switchover Review #1, 02.08.2010
PT-PMOC-OPS-MIN-6724-OPS-OAP	Planck SCS Switchover Review #2, 03.08.2010
PT-CMOC-OPS-MIN-6725-OPS-OAP	Planck SCS Switchover Review #3, 06.08.2010
PT-PMOC-OPS-MIN-6726-OPS-OAP	Planck SCS Switchover Review #4, 09.08.2010
PT-PMOC-OPS-MIN-6727-OPS-OAP	Planck Cryo Operations Enigneering Group Number #46, 15.09.201
PT-PMOC-OPS-MIN-6728-OPS-OAP	Planck Cryo Operations Enigneering Group Number #47, 22.09.201
PT-PMOC-OPS-MIN-6729-OPS-OAP	Planck Cryo Operations Enigneering Group Number #48, 28.09.201
PT-PMOC-OPS-MIN-6730-OPS-OAP	Planck Cryo Operations Enigneering Group Number #49, 05.10.201
PT-PMOC-OPS-MIN-6731-OPS-OAP	Planck Cryo Operations Enigneering Group Number #50, 11.10.201
PT-PMOC-OPS-MIN-6732-	Planck Cryo Operations Enigneering Group Number #51, 19.10.201

OPS-OAP	
PT-PMOC-OPS-MIN-6733-OPS-OAP	Planck Cryo Operations Enigneering Group Number #52, 26.10.2010
PT-PMOC-OPS-MIN-6734-OPS-OAP	Planck Cryo Operations Enigneering Group Number #53, 02.11.2010
PT-PMOC-OPS-MIN-6735-OPS-OAP	Planck Cryo Operations Enigneering Group Number #54, 09.11.2010
PT-PMOC-OPS-MIN-6736-OPS-OAP	Planck Cryo Operations Enigneering Group Number #55, 23.11.2010
PT-PMOC-OPS-MIN-6737-OPS-OAP	Planck Cryo Operations Enigneering Group Number #56, 07.12.2010
PT-PMOC-OPS-MIN-6738-OPS-OAP	Planck Cryo Operations Enigneering Group Number #57, 21.12.2010
PT-PMOC-OPS-MIN-6739-OPS-OAP	Planck Cryo Operations Enigneering Group Number #58, 06.01.2011
PT-PMOC-OPS-MIN-6740-OPS-OAP	Planck Cryo Operations Enigneering Group Number #59, 13.01.2011
PT-PMOC-OPS-MIN-6741-OPS-OAP	Planck Cryo Operations Enigneering Group Number #60, 19.01.2011
PT-PMOC-OPS-MIN-6742-OPS-OAP	Planck Cryo Operations Enigneering Group Number #61, 27.01.2011
PT-PMOC-OPS-MIN-6743-OPS-OAP	Planck Cryo Operations Enigneering Group Number #62, 10.02.2011
PT-PMOC-OPS-MIN-6744-OPS-OAP	Planck Cryo Operations Enigneering Group Number #63, 24.02.2011
PT-PMOC-OPS-MIN-6745-OPS-OAP	Planck Cryo Operations Enigneering Group Number #64, 10.03.2011
PT-PMOC-OPS-MIN-6746-OPS-OAP	Planck Cryo Operations Enigneering Group Number #65, 24.03.2011
PT-PMOC-OPS-MIN-6747-OPS-OAP	Planck Cryo Operations Enigneering Group Number #66, 14.04.2011

PT-PMOC-HSO-MIN-6748-OPS-OAP	Planck Cryo Operations Enigneering Group Number #67, 10.05.201
PT-PMOC-HSO-MIN-6749-OPS-OAP	Planck Cryo Operations Enigneering Group Number #68, 25.05.201
PT-PMOC-HSO-MIN-6750-HSO-OAP	Planck Cryo Operations Enigneering Group Number #69, 16.06.201
PT-PMOC-HSO-MIN-6751-HSO-OAP	Planck Cryo Operations Enigneering Group Number #70, 07.07.201
PT-PMOC-HSO-MIN-6752-HSO-OAP	Planck Cryo Operations Enigneering Group Number #71, 28.07.201
PT-PMOC-HSO-MIN-6753-HSO-OAP	Planck Cryo Operations Enigneering Group Number #72, 11.08.201
PT-PMOC-HSO-MIN-6754-HSO-OAP	Planck Cryo Operations Enigneering Group Number #73, 01.09.201
PT-PMOC-HSO-MIN-6755-HSO-OAP	Planck Cryo Operations Enigneering Group Number #74, 22.09.201
PT-PMOC-HSO-MIN-6756-HSO-OAP	Planck Cryo Operations Enigneering Group Number #75, 20.10.201
PT-PMOC-HSO-MIN-6757-HSO-OAP	Planck Cryo Operations Enigneering Group Number #76, 07.11.201
PT-PMOC-HSO-MIN-6758-HSO-OAP	Planck Cryo Operations Enigneering Group Number #77, 29.11.201
PT-PMOC-HSO-MIN-6759-HSO-OAP	Planck Cryo Operations Enigneering Group Number #78, 20.12.201
PT-PMOC-HSO-MIN-6760-HSO-OAP	Planck Cryo Operations Enigneering Group Number #79, 20.01.201
PT-PMOC-HSO-MIN-6761-HSO-OAP	Planck Cryo Operations Enigneering Group Number #80, 07.02.201
PT-PMOC-HSO-MIN-6762-HSO-OAP	Planck Cryo Operations Enigneering Group Number #81, 28.02.201
PT-PMOC-HSO-MIN-6763-	Planck Cryo Operations Enigneering Group Number #82, 12.04.201

HSO-OAP	
PT-PMOC-HSO-MIN-6764-HSO-OAP	Planck Cryo Operations Enigneering Group Number #83, 03.05.2012
PT-PMOC-HSO-MIN-6765-HSO-OAP	Planck Cryo Operations Enigneering Group Number #84, 24.05.2012
PT-PMOC-HSO-MIN-6766-HSO-OAP	Planck Cryo Operations Enigneering Group Number #85, 14.06.2012
PT-PMOC-HSO-MIN-6767-HSO-OAP	Planck Cryo Operations Enigneering Group Number #86, 17.07.2012
PT-PMOC-HSO-MIN-6768-HSO-OAP	Planck Cryo Operations Enigneering Group Number #87, 07.08.2012
PT-PMOC-HSO-MIN-6769-HSO-OAP	Planck Cryo Operations Enigneering Group Number #88, 28.08.2012
PT-PMOC-HSO-MIN-6770-HSO-OAP	Planck Cryo Operations Enigneering Group Number #89, 02.10.2012
PT-PMOC-HSO-MIN-6771-HSO-OAP	Planck Cryo Operations Enigneering Group Number #90, 06.11.2012
PT-PMOC-HSO-MIN-6772-HSO-OAP	Planck Cryo Operations Enigneering Group Number #91, 10.12.2012
PT-PMOC-HSO-MIN-6773-HSO-OAP	Planck Cryo Operations Enigneering Group Number #92, 08.01.2013
PT-PMOC-HSO-MIN-6774-HSO-OAP	Planck Cryo Operations Enigneering Group Number #93, 29.01.2013
PT-PMOC-HSO-MIN-6775-HSO-OAP	Planck Cryo Operations Enigneering Group Number #94, 26.02.2013
PT-PMOC-HSO-MIN-6776-HSO-OAP	Planck Cryo Operations Enigneering Group Number #95, 05.03.2013
PT-PMOC-HSO-MIN-6777-HSO-OAP	Planck Cryo Operations Enigneering Group Number #96, 26.03.2013
PT-PMOC-HSO-MIN-6778-HSO-OAP	Planck Cryo Operations Enigneering Group Number #97, 23.04.2013

PT-PMOC-HSO-MIN-6779-HSO-OAP		Planck Cryo Operations Enigneering Group Number #98, 16.05.2013
PT-PMOC-OPS-MIN-6800-OPS-OAP		Planck SENER spin-up activity kick-off
	as needed	
PT-CMOC-ODB-HB-6901-OPS-OAH		
PT-CMOC-ODB-DD-6902-OPS-OAH	Other documents at OPS level take numbers after 6902	
PT-CMOC-OPS-MEM-6950-OPS-OA		HP Readiness memo - 23 feb 09
PT-CMOC-OPS-MEM-6951-OPS-OA		Planck star tracker accuracy at increased spin rate
PT-PMOC-OPS-RP-8001-OPS-OAP	PT-PMOC-OPS-RP-1001-OPS-OAP	Planck weekly reports
onward		
PT-PMOC-OPS-RP-8501-OPS-OAP		Planck Monthly Operations Report #1
PT-PMOC-OPS-RP-8502-OPS-OAP		Planck Monthly Operations Report #2
PT-PMOC-OPS-RP-8503-HSO-OAP		Planck Monthly Operations Report #3
PT-PMOC-OPS-RP-8504-HSO-OAP		Planck Monthly Operations Report #4, May-2011

PT-PMOC-OPS-RP-8505-HSO-OAP	Planck Monthly Operations Report #5, June-2011
PT-PMOC-OPS-RP-8506-HSO-OAP	Planck Monthly Operations Report #6, July-2011
PT-PMOC-OPS-RP-8507-HSO-OAP	Planck Monthly Operations Report #7, August-2011
PT-PMOC-OPS-RP-8508-HSO-OAP	Planck Monthly Operations Report #8, September-2011
PT-PMOC-OPS-RP-8509-HSO-OAP	Planck Monthly Operations Report #9, October-2011
PT-PMOC-OPS-RP-8510-HSO-OAP	Planck Monthly Operations Report #10, November-2011
PT-PMOC-OPS-RP-8511-HSO-OAP	Planck Monthly Operations Report #11, December-2011

ANNEX 3.7 MOC Science Ground Segment Documenation

PT-CMOC-SYS-ADD-7101-OPS-ONV	System Architectual Design Document
PT-CMOC-SYS-PL-7202-OPS-ONV	Ground Segment System Test Plan
PT-CMOC-SYS-PL-7203-OPS-ONV	Template Test Plan
PT-CMOC-SYS-TOR-7301-OPS-ONV	H/P Integration and Test Steering Groups Terms of Reference
PT-CMOC-SYS-SCH-7302-OPS-ONV	H/P Ground Segment I&T Schedule and Status Report
PT-PMOC-SYS-RP-7303-OPS-ONV	Planck Integration Test Report PGS-IT-FTS-1.0&1.1

ANNEX 3.8 MOC External Documentation

SCI-PT-8818	Herschel-Planck Mission Implementation Requirements Document (MIRD)

Planck/PSO/2002-003	Planck Ground Segment Interface Requirements Document
FIRST/FSC/DOC/0117	Herschel Ground Segment Interface Requirements Document
H-P-SP-AI-0005	Herschel Planck CDMU Software Interface Requirments Document
PT-03646	Herschel Space Observatory Science Implementation Requirements Document
SCI-PT-RS-05991	Herschel Planck System Requirements Specification
SCI-PT-RS-07430	Herschel Planck Project System AIV Requirements Specification
H-P-1-ASP-MA-0693	Satellite User Manual
PACS-ME-UM-002	Herschel PACS User Manual
P-HPL-NOT-00009-SE / H-P-4-SES-NT-0009	Herschel/Planck CDMU User's Manual
H-P-4-VTT-UM-0001	Herschel / Planck RF Suitcase Equipment Users Manual
SCI-PT-RS-07360	Herschel Planck Operations Interface Requirements Document
SCI-PT-ICD-07418	Herschel Planck Space / Ground Interface Control Document
Herschel -HSC-ICD-0566	Herschel Solar System Object Ephemerides File ICD
Herschel -HSC-ICD-0377	Herschel Planned Observation Sequence (POS) ICD
Planck /PSO/2003-007	Planck Preprogrammed Pointing List (PPL)
SCI-PT-ICD-07527	Herschel Planck Packet Structure ICD
Planck/PSO/2005-015	Planck DPC-PSO: Spacecraft / Instrument Alignment Matrix (SIAM)
SCI-PT-IIDA-04624	Herschel Planck Instrument Interface Document Part A
SCI-PT-IIDB/SPIRE-02124	Heschel Planck SPIRE Instrument Interface Document Part B
SCI-PT-IIDB-LFI-04142	Herschel Planck LFI Instrument Interface Document Part B
SCI-PT-IIDB-PACS-02126	Herschel Planck PACS Instrument Interface Document Part B
SCI-PT-IIDB/HFI-04141	Herschel Planck HFI Instrument Interface Document Part B
SCI-PT-IIDB/HIFI-02125	Herschel Planck HIFI Instrument Interface Document Part B
H-P-1-ASP-LI-0034	Herschel Planck Project Directory (Listing of all names/address in HP

	team)
HERSCHEL-HSC-DOC-1219	Herschel Operations Groups Organisation
SCI/PT-053048	Herschel Planck Commissioning Phase Management Plan (CPMP)
SRE/PT-49186	Herschel Commissioning Phase Operations Plan (CPOP)
SRE/PT-49187	Planck Commissioning Phase Operations Plan (CPOP) Herschel Commissioning Phase, Detailed COP Timeline

ANNEX 3.9 Flight Dynamics References

ANNEX 3.9.1 ACMS

HERSCHEL-PLANCK ACMS Requirements Specification, H-P-SP-AI-0011, Issue 6.0, 01/02/2005

HERSCHEL-PLANCK ACMS, Pointing Budgets, H-P-4-ANA-TN-001_6_0, 03/03/2006, Volume 1: Main Text, Volume 2: Annexes.

HERSCHEL/PLANCK ACMS Design Report, H-P-4-DS-TN-011, Issue 6.1, 31/07/2007.

HERSCHEL/PLANCK ACMS Internal ICD, H-P-4-DS-IC-007, Issue 2.9, 29/04/2009

HERSCHEL/PLANCK ACMS Glossary, H-P-4-DS-TN-017, Issue 2.4 12/07/2006

PLANCK ACMS Nomenclature and Conventions, H-P-4-SEN-TN-0008, Issue 2.0, 31/01/2003

HERSCHEL/PLANCK ACMS: Herschel RWS Controller Design Report, H-P-4-ANA-TN-005, Issue 5.0, 03/03/2006

PLANCK Attitude estimate impact on STR specifications, H-P-4-SEN-TN-0001, Issue 1.2, 28/11/2002

PLANCK Attitude Determination Design Simulations Report, H-P-4-SEN-TN-0017, Issue 1.0, 31/01/2003

PLANCK Attitude Determination Algorithms Description, H-P-4-SEN-TN-0002, Issue 2.3, 26/06/2006

HERSCHEL/PLANCK ACMS User Manual, H-P-4-DS-MA-001, Issue 5.0, 05/06/2009.

HERSCHEL/PLANCK ACMS, Ground Calibrations and Performance Prediction Algorithm Description, H-P-4-DS-TN-041, 03/06/2004

HERSCHEL-PLANCK ACMS FDIR Analysis Report, H-P-4-DS-TN-010, Issue 5.2 12/02/2007

System Engineering Report: Using Chebyshev Polynomials for Solar System Objects, H-P-4-DS-SER-068, Issue 1.0, 14/01/2003

HERSCHEL/PLANCK ACMS: ACMS Simulator Model Specification,
H-P-4-DS-SP-0024, Issue 2.5, 25/07/2006.

HERSCHEL/PLANCK ACMS: ACMS Model Design and Interfaces,
H-P-4-DS-DD-003, Issue 1.6, 13/02/2006
HERSCHEL/PLANCK ACMS: User Manual Flight Control Procedures for the Herschel S/C, H-P-4-DS-MA-007, Issue 2.7, 17/06/2009

HERSCHEL/PLANCK ACMS: User Manual Flight Control Procedures for the Planck S/C, H-P-4-SEN-MA-001, Issue 4.0, 08/04/2009

ANNEX 3.9.2 ACC

Herschel/Planck ACMS ACC ASW Requirements Specification, H-P-4-DS-SP-018, Issue 4.1, 21/06/2006

Herschel/Planck ACMS Herschel RWS Controller: Requirements Specification of the RWS Controller, H-P-4-ANA-SP-001, Issue 3.5, 12/01/2007

Herschel/Planck ACMS ACC ASW Database ICD, H-P-4-DS-IC-006, Issue 3.0, 17/03/2004

HERSCHEL-PLANCK ACMS Telecommand Definitions, H-P-4-DS-TN-024, Issue 4.1 21/12/2006

HERSCHEL-PLANCK ACMS Telemetry Definitions, H-P-4-DS-TN-025, Issue 4.1 21/12/2006

Herschel/Planck ACC ASW Software Requirements Document, H-P-4-TASW-RS-0001, Issue 4A, 05/10/2006

Herschel/Planck ACC ASW Interface Control Document, H-P-4-TASW-IF-0002, Issue 3, 04/10/2006

ANNEX 3.9.3 ASTR

ASTR for Herschel/Planck Design Report, H-P-4-GAF-RP-0002, Issue 3.0, 09/2004

ASTR for Herschel/Planck User Manual, H-P-4-GAF-MA-0001, Issue 3.0, 10/2004

ASTR for Herschel/Planck Communications ICD, H-P-4-GAF-IC-0001, Issue 4.0, 10/2002

Herschel/Planck Performance Analysis, H-P-4-GAF-RP-0005, Issue 4.0, 09/2004

ASTR SW User Requirements Document, OG-URD-001-ASTR, Issue 7.0, 12/12/2002

H-ASTR SW Requirements Document, H-P-4-GAF-SR-0001, Issue 7.0, 21/06/2005

P-ASTR SW Requirements Document, H-P-4-GAF-SR-0002, Issue 7.0, 30/06/2005

Herschel/Planck ASTR: Key Parameters for Herschel STR Catalogue Generation, H-P-4-GAF-TN-0010, 04/02/2005

Herschel/Planck ASTR: Key Parameters for Planck STR Catalogue Generation, H-P-4-GAF-TN-0011, 04/02/2005

Herschel ASTR FM SN 01 Calibration Data Sheet, H-P-4-GAF-RP-0031, 12/2007
Herschel ASTR FM SN 02 Calibration Data Sheet, H-P-4-GAF-RP-0032, 11/2007
Planck ASTR PFM SN 03 Calibration Data Sheet, H-P-4-GAF-TR-0029, 08/11/2007
Planck ASTR FM SN 04 Calibration Data Sheet, H-P-4-GAF-RP-0030, 08/11/2007
Herschel ASTR FM SN 05 Calibration Data Sheet, H-P-4-GAF-RP-0035, 10/2007

ANNEX 3.9.4 H-GYR

Most Gyro documentation is subject to NDA and I was not allowed to see it.

Gyro FM Performance, H-P-4-DS-SER-245, Issue 2.0, 21/09/2005

ANNEX 3.9.5 P-FOG

Herschel/Planck Fibre Optic Gyro Specification, HP-EST-RS-1255, Issue 1.0, 23/04/2002

Astrix Performance Mathematical Model, FOG.NT.448.T.ASTR, Issue 5.0, 25/04/2006

Astrix TM/TC Interface Control Document, FOG.0.ICD.177.T.ASTR, Issue 6.0, 28/07/2005

Astrix 120 A for Planck User’s Manual, FOG.MA.937.T.ASTR, Issue 3.0, 06/01/2006

ANNEX 3.10 Flight Control Team References

ANNEX 3.10.1 AMCS

H-P-4-TNO-RP-A004; AAD DESIGN AND ANALYSIS REPORT; 3; 10/10/2003

H-P-4-TASW-RS-0001; ACC ASW Software Requirements Document; 4A; 05/10/2006
P-HPL-NOT-00031-SE; ACC User's Manual; 12; 10/07/2007
SCI-PT-ICD-07527; PACKET STRUCTURE INTERFACE CONTROL DOCUMENT (PSICD); 6; 25/01/2008

H-P-1-ASP-TN-0440; 1554 Bus FDIR; 2; 10/03/2003
H-P-4-DS-IC-006; ACC ASW Database ICD; 8; 13/10/2008
H-P-4-DS-IC-007; ACMS Internal ICD; 2.8; 13/10/2008
H-P-4-DS-SP-018; ACC ASW Requirements Specification; 5; 06/10/2008
H-P-4-DS-TN-010; FDIR Analysis Report; 5.2; 12/02/2007
H-P-4-TASW-IF-0002; ACC ASW ICD; 4B; 11/06/2009
H-P-4-TASW-MA-0004; ACC ASW User Manual; 3B; 09/11/2006
H-P-4-TASW-RS-0001; ACC ASW SRD; 5B; 17/06/2009
4148H–AERO; TSC695F SPARC 32-bit Space Processor User Manual; -; 01/12/2003
P-ASIC-NOT-00047-SE; COCOS ASIC User's Manual; 7; 14/10/2005
P-ASIC-NOT-00225-SE; CROME ASIC SW User's Manual; 2; 10/10/2005
P-HPL-ICD-00004-SE; ACC Hardware Software Interface; 9; 26/09/2005
P-HPL-NOT-00022-SE; ACC Technical Design Report; 5; 10/06/2004
P-HPL-NOT-00029-SE; ACC & CDMU Software Users Manual; 10; 31/10/2007
P-HPL-NOT-00031-SE; ACC Software Users Manual; 12; 10/07/2007
P-HPL-NOT-00077-SE; ACC sSoftware ICD for the BSW; 18; 22/08/2008
H-P-TN-AI-0024; SVM FDIR DESIGN SPECIFICATION; 7; 01/08/2005
H-P-TN-AI-0035; ACMS FDIR Issues; 3; 26/03/2004
P-HPL-NOT-00128-SE; ACC FMECA; 5; 10/06/2005

TL 20013; Coarse Rate Sensor (CRSA) USER MANUAL; 1; 02/10/2003
H-P-4-LAB-RP-0001; CRSA Detailed Design Report; 1; 27/10/2003
Document No. 899710; Design Report For the HERSCHEL ACMS IRU PROGRAM; B; 01/06/2004
ES13350; EICD for the Herschel Scalable SIRU; C; 19/08/2005

H-P-SP-AI-0039; ACMS Parameter Database; 5; 15/03/2006

H-P-1-ASP-MA-0693; SUM Chapter 4_4 RCS UM; 3.1; 20/06/2008
H-P-4-DS-TN-027; Herschel Control Design Report RCS; 4; 24/03/2006
HP-RILAM-RP-0002; RCS Design Report; 6; 18/04/2008
HP-RILAM-MA-0004; User/Operations Manual for the H-P RCS; 7; 02/11/2007
H-P-MA-AI-0001; SVM USER MANUAL VOLUME 5: REACTION CONTROL SUBSYSTEM; 8; 24/10/2008
H-P-TN-AI-0168; Impulse model for H-P thrusters; 2; 12/09/2008

H-P-4-ANA-TN-005; Herschel RWS Controller Design Report; 5; 03/03/2006
H-P-4-DS-SP-014; Reaction Wheel Requirements Specification; 3.2; 04/01/2005
H-P-4-TX-RP-0001; Reaction Wheel Assembly RSI 20-215/18 Design Report; 2; 10/11/2003

H-P-4-GAF-IC-0001; Herschel-Planck ASTR Communications ICD; 7; 01/10/2006
OG-URD-001-ASTR; ASTR Software URD; 7; 12/12/2002
H-P-4-GAF-BD-0001; H-ASTR SW CPU and Memory Budgets; 3; 27/01/2005
H-P-4-GAF-MA-0001; ASTR for H-P User Manual; 7; 01/10/2006

H-P-4-GAF-RP-0002; H-P ASTR Design Report; 2; 20/09/2004
H-P-4-GAF-RP-0004; H-P ASTR FMECA; 3; 30/07/2004
H-P-4-GAF-RP-0005; H-P ASTR Performance Analysis; 5; 01/10/2005
H-P-4-GAF-SD-0001; H-ASTR SW Design Document; 7; 14/03/2006
H-P-4-GAF-SR-0001; H-ASTR SW Requirements Document; 7; 21/06/2005
H-P-4-GAF-UR-0001; ASTR for Herschel Software URD; 5; 01/09/2004
H-P-4-GAF-RP-0031; HERSCHEL STR s.n. 01: CALIBRATION DATA SHEET; 1; 01/12/2007
H-P-4-GAF-RP-0032; HERSCHEL STR s.n. 02: CALIBRATION DATA SHEET; 1; 01/11/2007
H-P-4-GAF-RP-0035; HERSCHEL STR s.n. 05: CALIBRATION DATA SHEET; 1; 01/10/2007

H-P-MA-AI-0001; H-P ACMS User Manual; 7; 20/06/2008
H-P-MA-AI-0001; SVM USER MANUAL VOLUME 4: ATTITUDE CONTROL AND MEASUREMENT SUBSYSTEM; 8; 24/10/2008
H-P-4-DS-MA-001; H-P ACMS User Manual; 4.4; 12/02/2009
H-P-4-DS-RP-003; H-P ACMS Budget Report; 2.4; 03/11/2006
H-P-4-DS-TN-011; H-P ACMS Design Report; 6; 07/04/2006
H-P-BD-AI-0007; H-P SVM Pointing Error Budget; 4; 23/02/2007

H-P-4-DS-MA-006; ACMS Flight Control procedures - common; 3; 09/10/2008
H-P-4-DS-MA-007; ACMS Flight Control procedures - Herschel; 2.7; 17/06/2009
H-P-4-DS-MA-008; ACMS Contingency Recovery Procedures - common; 1.2; 09/10/2008
H-P-4-DS-MA-009; ACMS Contingency Recovery Procedures - Herschel; 2.2; 10/10/2008
H-P-4-DS-TN-024; H-P ACMS Telecommand Definition; 5.1; 09/10/2008
H-P-TN-AI-0018; H-P SVM TM/TC Budget; 3; 20/07/2004
H-P-TN-AI-0100; H-P SVM Housekeeping Packets Definition; 2; 27/10/2006

ANNEX 3.10.2 CDMS

CDMU Software Interface Control Document for the Basic Software (BSW); P-HPL-NOT-00076-SE; ideue 18; 2008-12-19
HP CDMU ASW Software Interface Control Document; H-P-4-SSF-IC-0001; i7.0; 23.07.2009
H-P CDMU ASW User Manual; H-P-4-SSF-MA-0001; i5.8; 3.07.2009
Herschel/Planck CDMU Application Software Requirements Specification; H-P-SP-AI-0031; issue 13; 29th June 2009
CDMU Hardware Software Interface; P-HPL-ICD-00003-SE; issue 11; 2008-02-06
Herschel/Planck ACC&CDMU BSW Software User's Manual; P-HPL-NOT-00029-SE; issue 15; 1009-07-17

ANNEX 3.10.3 Power Subsystem

PCS User Manual	[H-P-1-ASP-MA-0693 Chapter 4-3]
Power budget	[H-P-1-ASP-TN-1295]

ANNEX 3.10.4 Thermal Subsystem

TCS User Manual	[H-P-1-ASP-MA-0693 Chapter 4-6

ANNEX 3.10.5 TT&C Subsystem

TT&C User Manual	[H-P-1-ASP-MA-0693 Chapter 4-5]
Space Ground ICD	[SCI-PT-ICD-07418]
TTC link Budget	[H-P-BD-AI-0005]

ANNEX 3.10.6 Cryostat Subsystem

Cryostat User manual	[H-P-1-ASP-MA-0693 Chapter 5]
CCU TM/TC ICD	[HP-2-PANT-IC-0004]
DLCM Report	[HP-2-ASED-RP-0294]

ANNEX 3.10.7 HIFI instrument

HIFI User Manual, Volume 1; SRON-U/HIFI/UM/2004-1; issue 4; 14/07/2008
HIFI User Manual, Volume 2; SRON-U/HIFI/UM/2004-1; issue 4; 14/07/2008
HIFI User Manual, MIB 139 Annex; SRON-U/HIFI/UM/2004-1 (Annex); issue 64; 11/07/2008
HIFI Housekeeping Packet Structure ICD; SRON-U/HIF/SP/2001-003; issue 1.11; 26/10/2006
HIFI Failure detection Isolation and Recovery Specification; SRON-U/HIFI/SP/2004-002; issue 1.1; 20/01/2006
HIFI Telecommand packet structure ICD; SRON-U/HIFI/SP/2001-001; issue 1.11; 26/02/2010
HIFI Telemetry Packet Structure ICD; SRON_U/HIFI/SP/2001-002; issue 1.12; 26/02/2010
Herschel/Planck IIDB - HIFI; SCI- PT-IIDB/HIFI-02125; issue 3.2; 05/03/2004

ANNEX 3.10.8 PACS instrument

PACS User Manual; PACS-ME-UM-002; issue 1.4; 28/04/2009
DPU OBS User Manual; PACS-CR-UM-024; issue 3.3; 14/02/2009
BOLC to DEC/MEC Electrical Interface Control Document; Sap-PACS-CCa-0046-01; issue 1.5; 26/03/2006
SPU High Level Software User Manual, ; PACS-TW-HM-002; issue 13.96; 18/02/2009
DEC/MEC User Manual; PACS-CL-SR-002; issue 4.8; 11/11/2008
Instrument Interface Document - Part B PACS; SCI-PT-IIDB/PACS-02126; issue 4; 02/06/2006

SPU HLSW to DPU Interface Description; PACS-TW-ID-001; issue 6; 13/12/2005
Operating Modes of the PACS Instrument; PACS-ME-PL-005; issue 1; 30/09/2003
Failure Detection Isolation and Recovery; PACS-ME-GP-002; issue 1.3; 23/04/2008
Switch-on procedure telemetry Packets user Manual; DPU-MA-CGS-004; issue 2; 05/02/2003
Packet Structure Interface Control Document; SCI-PT-ICD-07527; issue 5; 20/07/2004
DPU OBS Software Specification Document; PACS-CR-SR-013; issue 3.1; 05/05/2006
SPU HLSW Specification Document; PACS-TW-GS-001; issue 4.5; 04/09/2006
PACS OBCPs and DMC Sequences; PACS-ME-LI-005; issue 1.7; 09/07/2008

ANNEX 3.10.9 SPIRE instrument

DataICD3.0; 3.0; 02/08/2010
HP-2-ASED-RP-0011_v6_Thermal_Report; issue 6; 23/03/2009
HSIA Worksheets TN001719v2; 2; 16/02/2009
Operating_Modes_for_the_SPIRE_Instrument; issue 3.3; 14/06/2005
PRJ001855_SPIRE_Autonomy_Requirements; issue 1.0; 17/05/2006
PRJ001978_SPIRE_FDIR_Issue; issue 1.1; 06/04/2009
SPIRE Data ICD; issue 2.1; 22/07/2007
SPIRE FDIR; issue 1.0; 13/07/2004
SPIRE Functional Test spec issue; issue 1.4; 15/06/2005
SPIRE_Design_Description; issue 2.0; 15/05/2003
SPIRE_OBS_User_Manual; issue 3.0.0; 23/12/2008
[H-SPIRE-IIDB] SCI-PT-IIDB-SPIRE-02124 Issue 3.3; 30/06/2004
[HP-PLM-IIDA] SCI-PT-IIDA-04624 Issue 3.3; 21/06/2004